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117

THE Refrigeration Industry

INSTALLATION
MAINTENANCE
MERCHANDISING

AIR CONDITIONING
MACHINERY

FEBRUARY, 1946

IN THIS ISSUE:

Building Customers with Custom Building . . . Watch Us Grow
Soda Fountain Servicing (II) . . . How to Estimate Inventory
The "How" of Capillary Tube Systems . . . Displaying to Sell

A PUZZLE FOR OUR SCIENTISTS . . .

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Solving Problems for Industry

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FIRE-RESISTANT HOSE ASSEMBLIES

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Countless times since 1919 Weatherhead has been assigned the job of saving "a penny a part" for a manufacturer—and has solved the puzzle and delivered a finer part in the bargain. At Weatherhead this kind of thinking begins at the beginning—in the laboratory—where a steadily growing staff is trained to consider engineering, production and marketing factors all as interlocking parts of each job at hand.

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A **SIMPLY UNSCREW AND REMOVE THE CONNECTION AT OUTLET END OF DEHYDRATOR.**
Note that on the Torpedo there are no bolts to remove—no flanges to take off.

B **SHAKE OUT OLD SILICA GEL, CLEAN DEHYDRATOR AND SCREEN, HEAT TO REMOVE MOISTURE, AND REFILL WITH NEW SILICA GEL.**
No loose screens to contend with on Torpedo. Finger type monel metal screen—of welded construction—is integral with outlet connection so that screen and connection are removed at the same time. Dehydrator can be heated before refilling, if desired, because no soft solder is used in construction.

C **SCREW OUTLET END BACK IN PLACE.**
No soldering required after refilling on the Imperial Torpedo Dehydrator. The job is done in short order.

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Packed with Silica Gel.

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THE Refrigeration INDUSTRY

VOLUME 3, No. 2 FEBRUARY, 1946

THE COVER . . . Testing hermetically-sealed refrigerating condensing units for leaks. The units are dipped into a glass vat, after being charged with dry compressed air, and are circled past an observer who notes any leaks, which are indicated by bubbles. An article in next month's issue will describe equipment used to insure positive dehydration of sealed units. (Nash-Kelvinator photo)

THIS MAGAZINE has no official affiliation with ANY group, society or association

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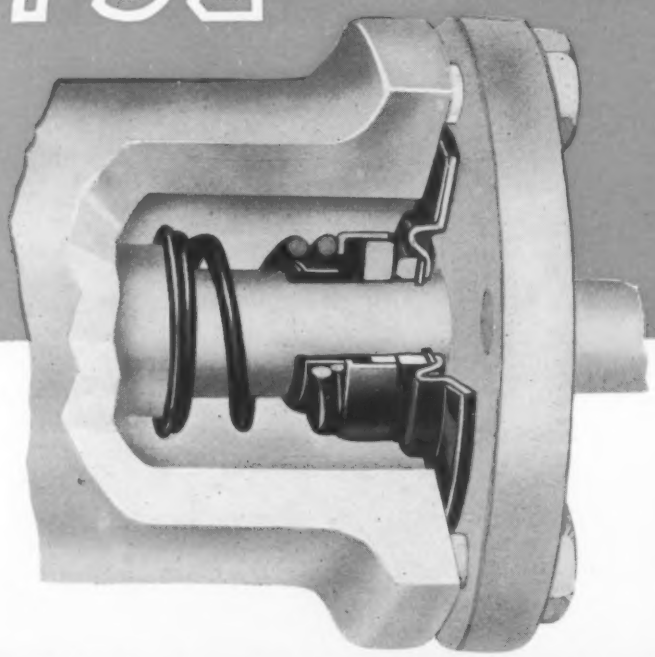

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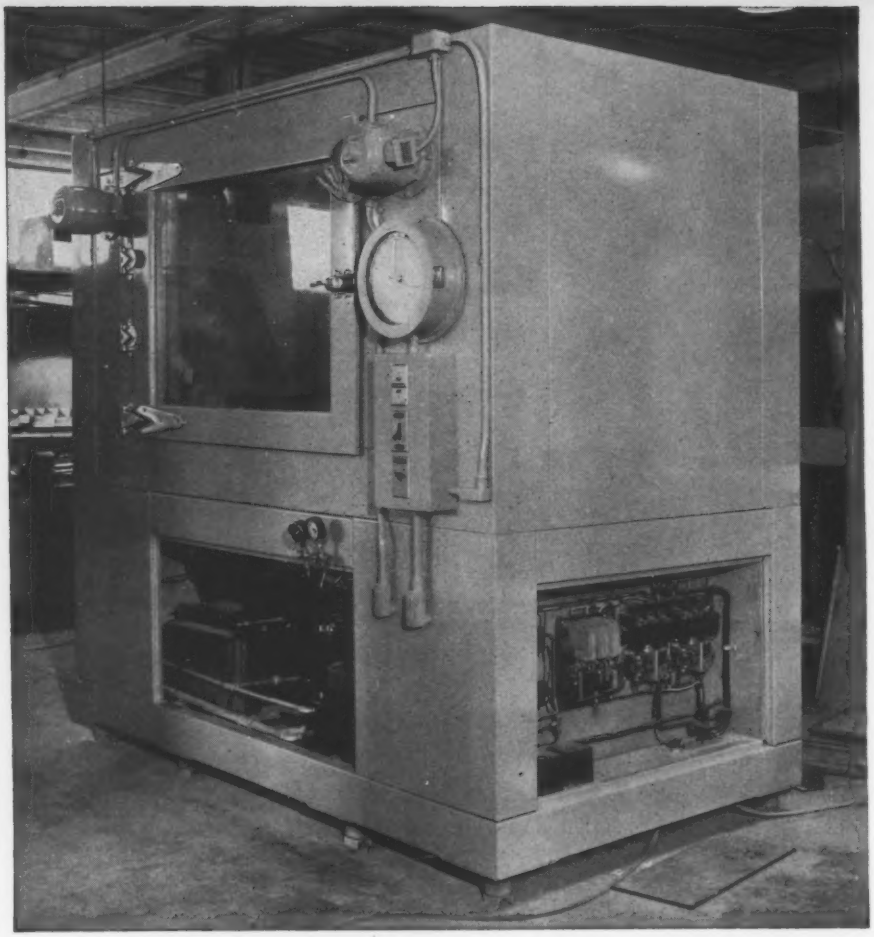

The Hi-Low Testing Chamber Used by the Admiral Corporation.

"FREON-22" Produces Sub-Zero Temperatures in New Product Development Work

AT THE Admiral Corporation plant in Chicago, Ill., "Freon-22" is utilized in a Hi-Low machine in which, during the war, tests were made on radio and radar equipment in simulated high-altitude temperatures.

Extremely low temperatures were held constant for periods as long as 12 hours. Specimens remained in the cabinet for a full week to insure thorough testing through temperature range of from + 85°C to – 55°C.

The machine, manufactured by the Kold-Hold Co. of Lansing, Mich., operates automatically. It records the temperature and permits exacting study of the effect of temperature cycles upon various materials.

Now application of low temperatures obtained with "Freon-22" is enabling Admiral Corporation to continue research in the development of new products.

Today—when sub-zero refrigeration is required for research, tests or in manufacturing operations—"Freon-22" is widely used to produce those temperatures efficiently, economically and safely. Write for complete information. Kinetic Chemicals, Inc., Tenth and Market Sts., Wilmington, Delaware.

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safe refrigerants

"FREON" IS KINETIC'S REGISTERED TRADE MARK FOR ITS FLUORINE REFRIGERANTS AND PROPELLENTS

100 YEARS *of Service*

Michael and Robert Bolda Celebrate 50th Anniversary as Employees of Detroit Lubricator Company

On October 13, 1945, Michael and Robert Bolda, celebrated their 50th anniversary in the service of Detroit Lubricator Company, rounding out 100 years of service between them, having started with Detroit Lubricator Company in the Fall of 1895.

Mike is superintendent of the foundry, and Bob is foreman of the core room. Their work has been with the foundry for the entire time, and they have seen non-ferrous foundry methods develop from the rule of thumb control and hand labor of 1895, to the modern mechanized operation and exact scientific control of modern instruments as used today.

Mike's first job was mixing core sand. He had to "riddle" (sift) it by hand, and mix in the oil and other ingredients by hand shoveling. Then he had to carry it by hand, in boxes, to the core making benches. In 1902 he was given charge of the core room, and in 1910 was made assistant foundry superintendent. In 1916 he became foundry superintendent and began his work of exact control which has made Detroit Lubricator castings noted for high quality. He did it by making exact records of the best conditions for casting each type of piece—by constant experiment to improve castings.

In the early days such instruments as pyrometers were unknown. Metal temperature had to be judged by color and by "vibration" when a rod was immersed in the ladle of molten metal. Very hot metal will vibrate the rod, cool metal will not. A skilled man can check his eye judgment in this way. "Modern pyrometers are much better, however," Mike says, "because eye judgment at its best can ony come within 10 degrees or so of the correct temperature, and then only under the most favorable conditions."

Careful control of metal temperatures, molding and casting conditions, as well as metal mix, has always been of first importance to Detroit Lubricator Company. Beginning with their early products, pressure and other type lubricators, and continuing through automobile carburetors to the present line of refrigeration and heating valves, their products have always required castings of perfect soundness, impervious under pressure test. When Mike took charge of the foundry, scrap losses were high and too many castings had to be remelted because they were not suitable for use. His control methods have since cut losses to a fraction of what they were.

While Mike was pursuing losses in the foundry proper, Bob was doing similar service in making cores. Cores are baked sand shapes placed in the mold to make hollow places in castings. They are made of various kinds of sand plus some binder such as linseed oil or stale beer (in early days); or these days, scientifically mixed core oil. Making them looks as simple as whipping up mud pies, but foundrymen will tell you they are tricky. They can skyrocket scrap losses if they fail to behave properly when the hot metal flows around them in the mold.

Mike and Bob have found Detroit Lubricator Company a good place to work. So have their sons. Mike has three sons and one daughter living. One son works at Detroit Lubricator Company and the other two are in the armed services. Two of Bob's sons work at Detroit Lubricator Company and two are in the army. Bob also has a daughter.

The Boldas are, in many ways, typical of Detroit Lubricator Company people. They stay with the company, contributing their skill and experience toward making the products better as the years go by.

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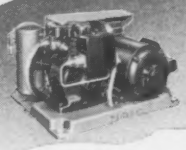
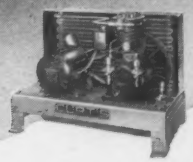
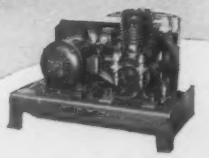


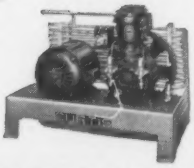
1/4 H.P. (cabinet type)



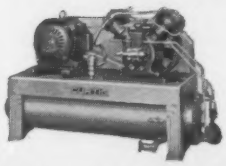
1 H.P. Air-Cooled



3 H.P. Air-Cooled



2 H.P. Water-Cooled (counterflow)

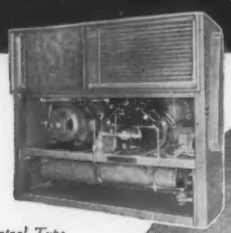


15 H.P. Water-Cooled Shell and Tube

Saturated Air-Condenser

CURTIS

Commercial Refrigeration and Air Conditioning Units



Central Type Air-Conditioner

3 and 5-ton Packaged Air-Conditioner

In installations throughout the world, meeting the widest variety of requirements, Curtis equipment is well known for delivering satisfactory, trouble-free service throughout an exceptionally long machine life.

Curtis offers every user a complete line of Commercial Refrigeration Units — 48 water-cooled condensing units (1/3 to 30 H. P.) and 45 air-cooled condensing units (1/4 to 3 H. P.). Curtis Packaged Air Conditioning Units needing only water and electrical connections to install, are made in 3 and 5-ton sizes and Curtis Remote Type Units in 7 1/2, 10, and 15-ton capacities.

Advanced engineering, precision manufacture, and high-quality construction are characteristic of every Curtis unit. Each reflects the wide experience of 92 years of successful manufacturing, plus wartime progress in research, development, and production.

Whatever your own requirements are, it will pay you to write for bulletins and information on the complete Curtis line.

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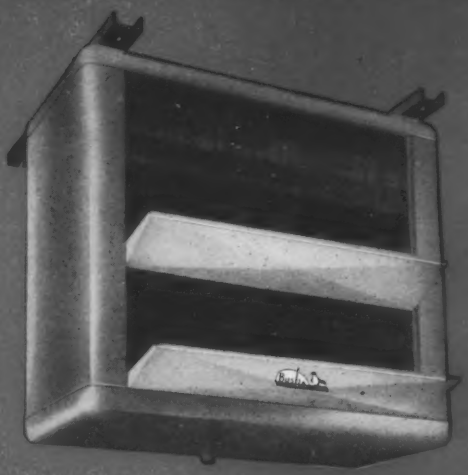
Service Engineers prefer Bush *dependable* Units



from a service engineers point of view

- BUSH UNITS stand the test of time with an enviable record of reliable performance.
- BUSH UNITS are available in a wide range of sizes and types to fit every specialized application.
- BUSH UNITS will take hard usage beyond the exacting demands of any refrigerating system.
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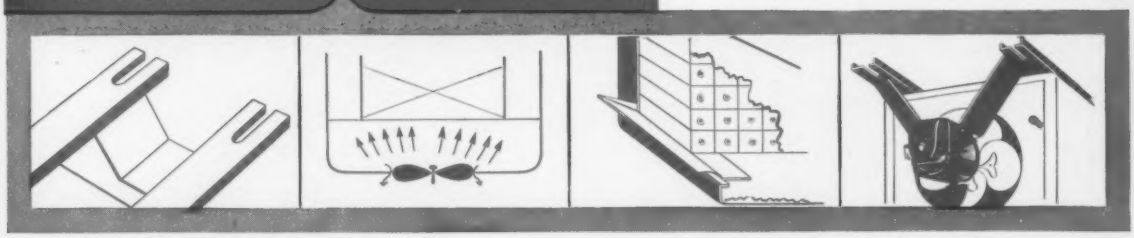

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- SLOTTED HANGERS — A BUSH engineering feature that permits greater ease of installation. Slips in under lag bolts at one end . . . giving support while other end is being fastened in place.
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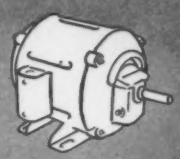
As a repulsion motor, the Wagner type RA motor has a high starting-torque that enables it to start high-inertia loads and accelerate them smoothly. At the same time it requires the lowest starting-current of any type of single-phase motor, and is therefore the least likely to cause light flicker.

As an induction motor, the Wagner type RA motor has a fairly constant and high operating-speed at all operating loads, and a flat efficiency curve over a wide operating range.

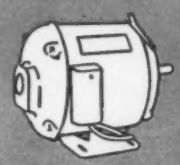
This versatile motor is not only exceptionally suited for use on practically *every* type of motor-driven appliance and machine normally utilizing single-phase current, but is also the *only* choice for a wide variety of applications because of its low upkeep cost, minimum servicing, freedom from vibration and noise, and years of reliable service.

For complete information, write for Bulletin MU-185, and address your request to Wagner Electric Corporation, 6442 Plymouth Avenue, St. Louis 14, Mo.



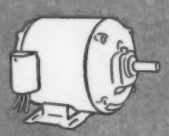
REPULSION-START INDUCTION

CAPACITOR-START INDUCTION



SPLIT-PHASE

DIRECT-CURRENT



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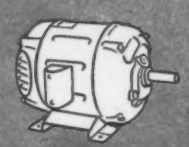

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Wagner motor parts are available at 350 Wagner-owned and contract repair shops.

CHECK THESE FEATURES

FIGURE 1—Shows wrenches properly applied to main body and auxiliary body for breaking the joint; the first step in disassembling the valve.

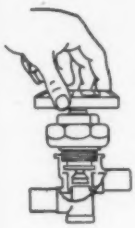


FIGURE 2—
Observe here the entire internal assembly being removed by hand.

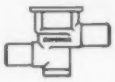


FIGURE 3—
The entire internal assembly has been removed from the main body.

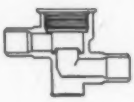


FIGURE 4—The main body, devoid of all internal parts, is now ready for cleaning and fluxing of the sweat tube connections preparatory to soldering.

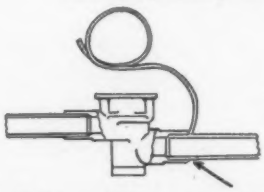


FIGURE 5—Refrigerant lines are soldered to the valve connections in the usual manner. Danger of distorting internal parts is eliminated because all these parts have been removed.

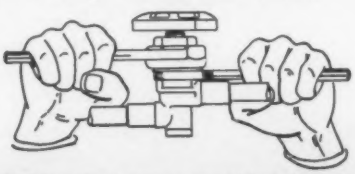
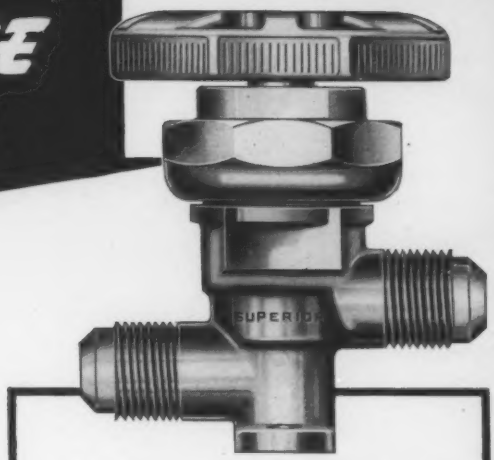


FIGURE 6—Final step is remaking the joint between the main body and auxiliary body. Note: Valve stem must be in full open position when tightening upper assembly into main body.



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No. 115

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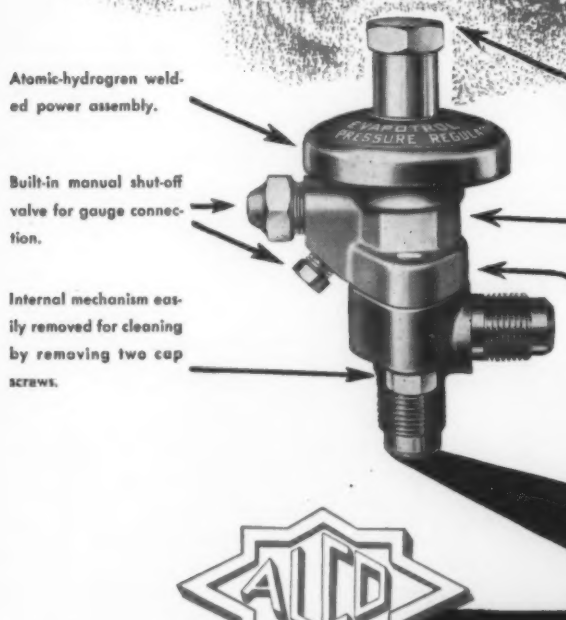
"Vest Pocket"

EVAPORATOR PRESSURE REGULATOR

Simple, compact, lightweight — the Alco Evapotrol is expertly engineered for smaller installations:

- to prevent freezing in beverage and water coolers
- to take advantage of maximum evaporator capacity
- for accurate control of a single evaporator in a multiple system—by maintaining constant evaporator pressure, independent of fluctuations in suction pressure or load.

Bulletin 760 will bring you detailed data on Evapotrols with flare or solder connections; for larger regulators request Bulletin 179.



Atomic-hydrogren welded power assembly.

Built-in manual shut-off valve for gauge connection.

Internal mechanism easily removed for cleaning by removing two cap screws.

Completely moisture-proof pressure adjustment.

Minimum number of moving parts.

Tight seating, oil-resistant composition seat.

ALCO

ALCO VALVE CO.

843 KINGSLAND AVE. • ST. LOUIS 5, MO.

Designers and Manufacturers of Thermostatic Expansion Valves; Pressure Regulating Valves; Solenoid Valves; Float Valves; Float Switches.

USE CENTURY *Refrigeration* COMPRESSOR MOTORS

30 horsepower Century Motor driving a refrigeration compressor in a packing plant.

For Smooth, Quiet Power, Dependable Operation, Long Life

Century refrigeration compressor motors have the necessary high starting torque to start heavy loads with a low starting current. They come up to full speed quickly, yet smoothly and quietly. The correct Century motor installed on a refrigeration compressor assures maximum results.

Century motors are built with rugged frames and accurately machined feet for solid mounting. They are well balanced mechanically and electrically. Unique bearing bumpers cushion the shock of shaft shoulders. All of these features—and many more contribute to the smooth, quiet, dependable operation of Century motors.

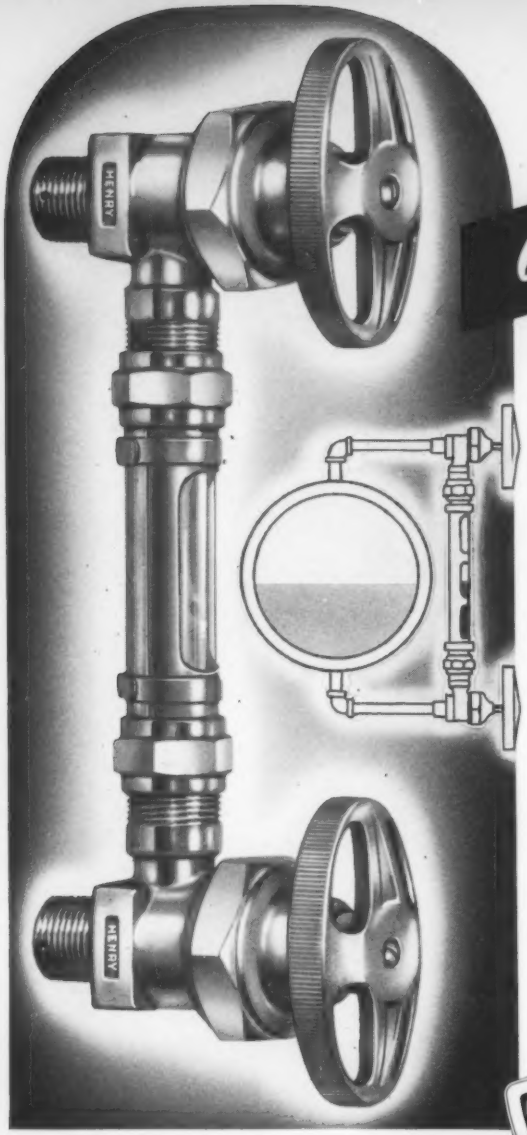
For refrigeration compressors, pumps, fans, blowers, or any similar application ask about the advantages Century has to offer. The wide range of types and sizes from 1/20 to 600 horsepower means there is a Century motor for nearly every application.

Century C MOTORS

CENTURY ELECTRIC COMPANY, 1806 Pine Street, St. Louis 3, Missouri

Offices and Stock Points in Principal Cities

CE-411



A New, Leak-Proof

HENRY

PACKLESS GAUGE GLASS ASSEMBLY

FOR POSITIVE LIQUID LEVEL INDICATION

When you install this new Henry Packless Gauge Glass Assembly you and your customers will KNOW how much liquid is in the vessel—no more guessing! This positive liquid level visual indicator can be used on an accumulator, liquid receiver or oil reservoir. Possibility of leakage is minimized through the use of diaphragm packless valves. If the glass tubing in this Assembly is accidentally broken while the valves are open, the liquid cannot escape because a safety ball check device in each valve automatically seals off each end of the tube the instant breakage occurs.

BUILT FOR CLEAR VISION AND LONG SERVICE

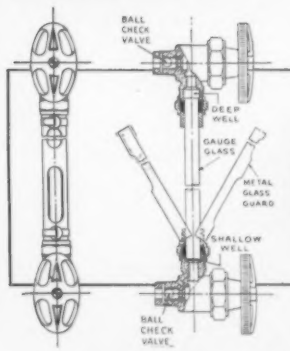
One glance at the Henry Gauge Glass Assembly and you see the actual liquid level. The clear, strong, high pressure glass tubing that is used is protected by a metal guard so as to meet safety code requirements. The guard has multiple slots, thereby affording a clear view of the liquid column. Assembly is available for various mounting centers.

Installed by the manufacturer as original equipment on liquid receivers and compressors, it provides the extra sales appeal of using packless valve design. Installed by the service man on replacement and repair jobs, it assures increased profits and satisfied customers.

GAUGE GLASS ASSEMBLIES FOR AMMONIA SYSTEMS—Using standard packed valve construction are also available in the complete Henry line.

Sold by Leading Jobbers Everywhere

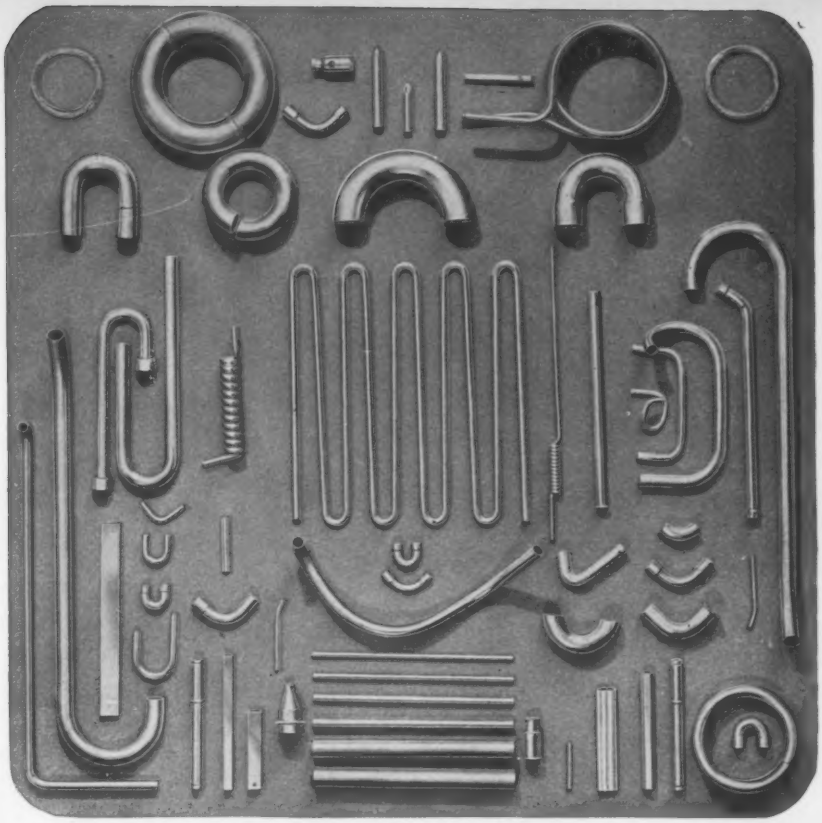
HENRY VALVE CO
TRADE MARK



SHOWING HOW METAL GUARD IS EASILY REMOVED

HENRY VALVE COMPANY 3260 WEST GRAND AVE. CHICAGO 51, ILLINOIS

PACKLESS AND PACKED VALVES • STRAINERS • DRIERS FOR REFRIGERATION AND AIR CONDITIONING
AMMONIA VALVES • FORGED STEEL VALVES AND FITTINGS FOR OIL, STEAM AND OTHER FLUIDS



Just a few samples

of special-shape Tube Forms

You're likely to save time, money and costly rejections by letting us do your tube forming. We have stock tools for many types of bending, flaring, expanding, swaging and beading—and many years experience in using them. We make a wide variety of precision tubes to specifications . . . in sizes from .015" to 1" O.D., with wall thickness down to .003" . . . round, square and irregularly shaped . . . in Copper, Brass, Bronze, Nickel Silver and other Copper Alloys. We'll welcome the opportunity to quote on your requirements.

48397

Look for the tube with the Cup Seal* End. It's exclusive with Anaconda Dehydrated Copper Refrigeration Tubes.

*Patent Applied For.

FRENCH SMALL TUBE BRANCH OF THE AMERICAN BRASS COMPANY

Subsidiary of Anaconda Copper Mining Company—General Offices: Waterbury 88, Connecticut

In Canada: ANACONDA AMERICAN BRASS LTD., *New Toronto, Ont.*

ANACONDA

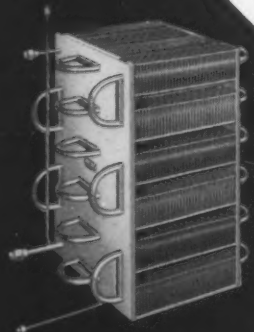
Anaconda Refrigeration Tubes

"HEY, FELLAH!"

Pardon us for shouting, but we want the entire refrigeration industry to know that PEERLESS products are now being delivered far and wide. PEERLESS Flash Coolers, Ice Cube Makers, Fin Coils, and Off-Center Coils, shown below, are all being shipped to customers. And so are PEERLESS Capacity Boosters and Expansion Valves. PEERLESS is in production, a production made doubly efficient by new equipment and methods acquired during wartime. More than ever, you can depend upon the superiority of PEERLESS products.

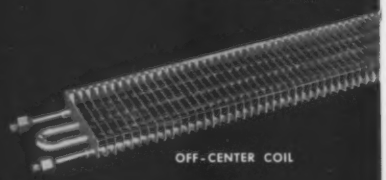
Sold through leading refrigeration supply jobbers. Write for detailed information on products in which you are interested.

ICE CUBE MAKER

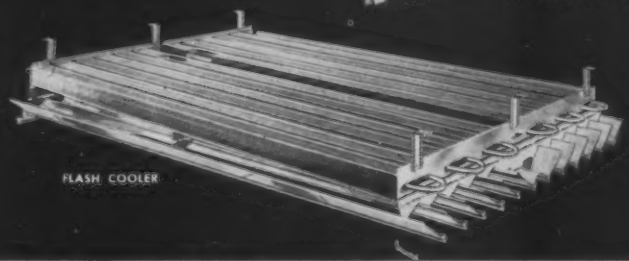


FIN COIL

ICE CUBE MAKER



OFF-CENTER COIL



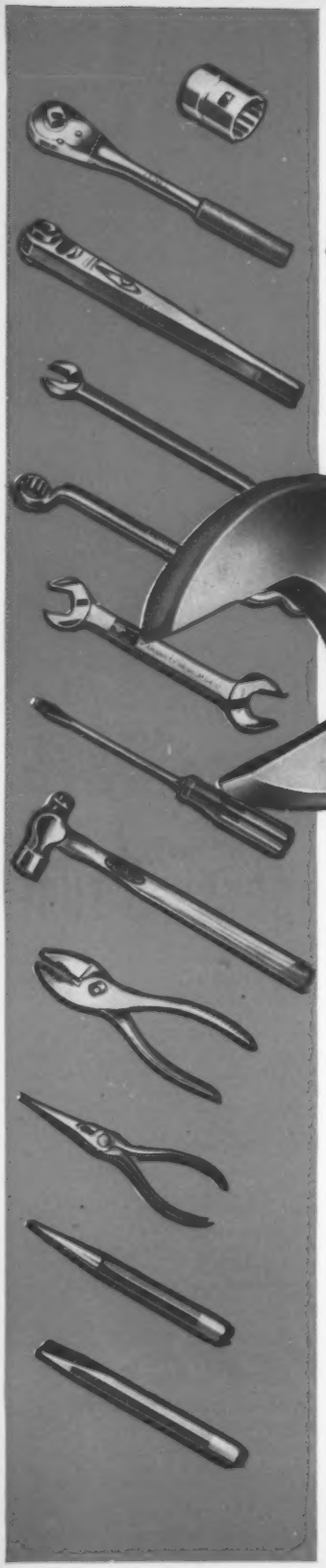
FLASH COOLER

PEERLESS

PEERLESS OF AMERICA, INC.

EXECUTIVE AND GENERAL SALES OFFICES

333 NORTH MICHIGAN AVENUE, CHICAGO 1, ILLINOIS, U. S. A.



BONNEY "Balanced Design" OPEN END WRENCHES

Every mechanic recognizes the "feel" of good wrenches—wrenches that are not awkward—that are easy-on-the-hands—that are thin and light, yet strong enough for tough, hard use.

All these qualities are the result of Bonney's "Balanced Design." It starts with the selection of the right steel to provide maximum strength with minimum weight, and ends with durable, attractive plating. In between, every step in the designing, forging, machining and heat-treating of Bonney Tools is aimed at making them the Tools that mechanics like best.

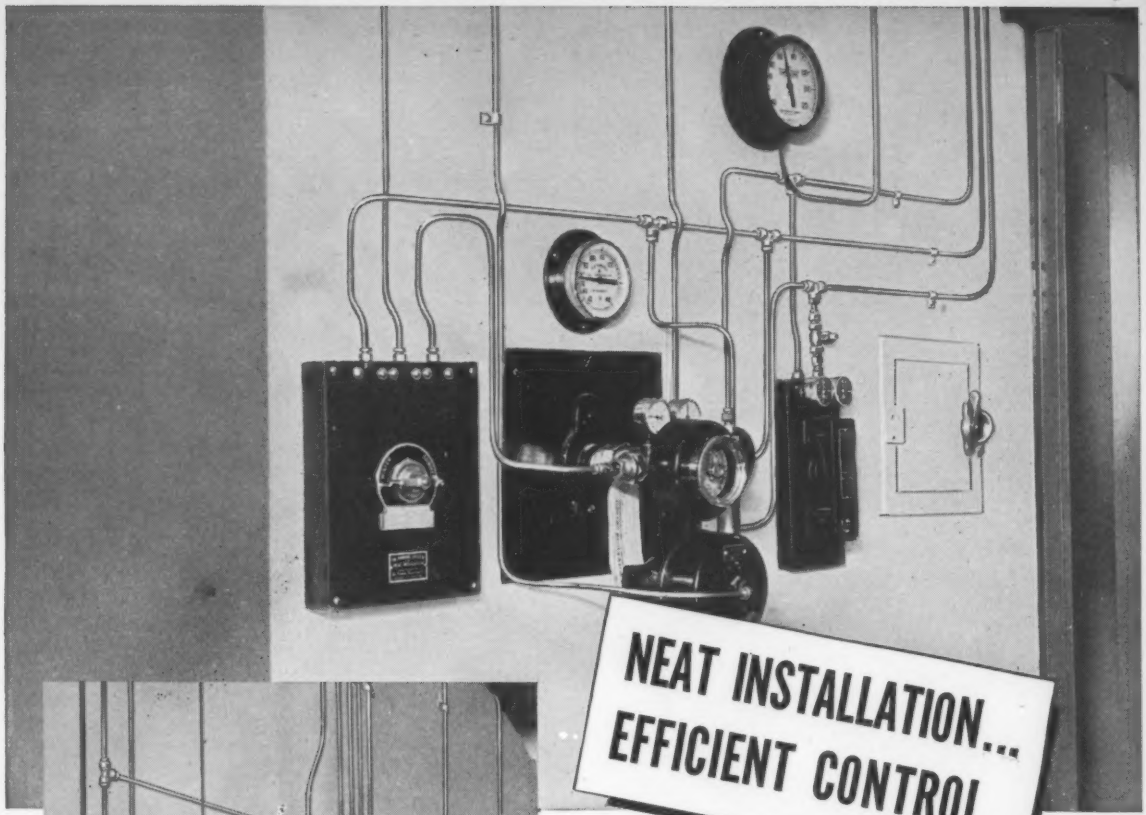
Ask your nearby Bonney Tool Distributor or Jobber to show you the complete line of Bonney "Balanced Design" Tools—or write for a copy of the new Bonney Tool Catalog.

BONNEY FORGE & TOOL WORKS

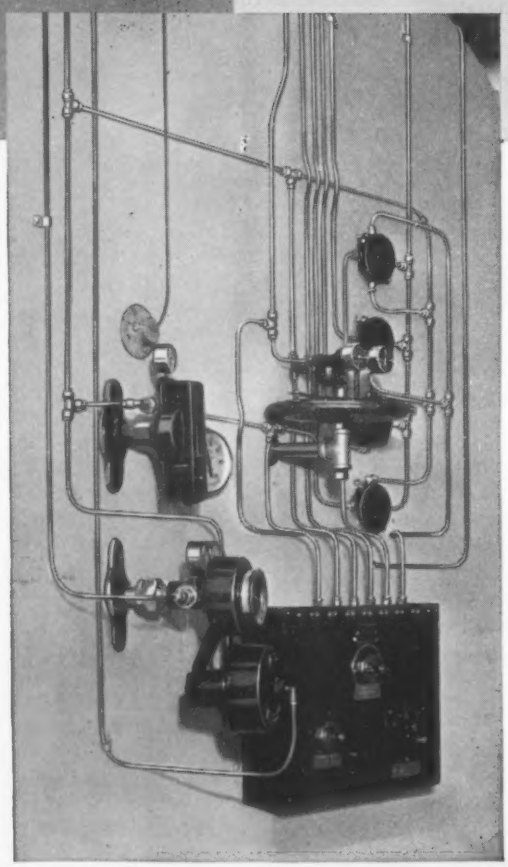
719 N. Meadow St., Allentown, Pa.

In Canada: Gray-Bonney Tool Co., Ltd., St. Clarens & Royce Aves., Toronto

BUY MORE BONDS AND KEEP THEM



NEAT INSTALLATION... EFFICIENT CONTROL



with REVERE DRYSEAL TUBE

With Revere Dryseal Copper Tube, which is available *now*, you can make not only a neat installation for air conditioning, refrigeration, heat control, bottled gas and many other services, but one which you know will perform as well as it looks.

This tube is "dead soft" so you can bend, cut and flare it with ease. It comes in coils of 25, 50 and 100 feet. Each length is individually treated to remove all interior moisture, then sealed at both ends. You get it clean, bright and bone-dry so that no moisture is present to react with any refrigerant and produce corrosive products.

It is made of deoxidized copper and is carefully kept free of oxides through every manufacturing step. It comes in sizes from ⅛" to ¾" O.D. with .035" wall.

Also available for similar services is Revere Sealed End Copper Tube, which has each end plugged and taped for protection against injury and contamination. Revere Dryseal and Sealed End Copper Tube are sold by Revere Distributors in all parts of the country. The Revere Technical Advisory Service is always ready to help with your problems.

REVERE

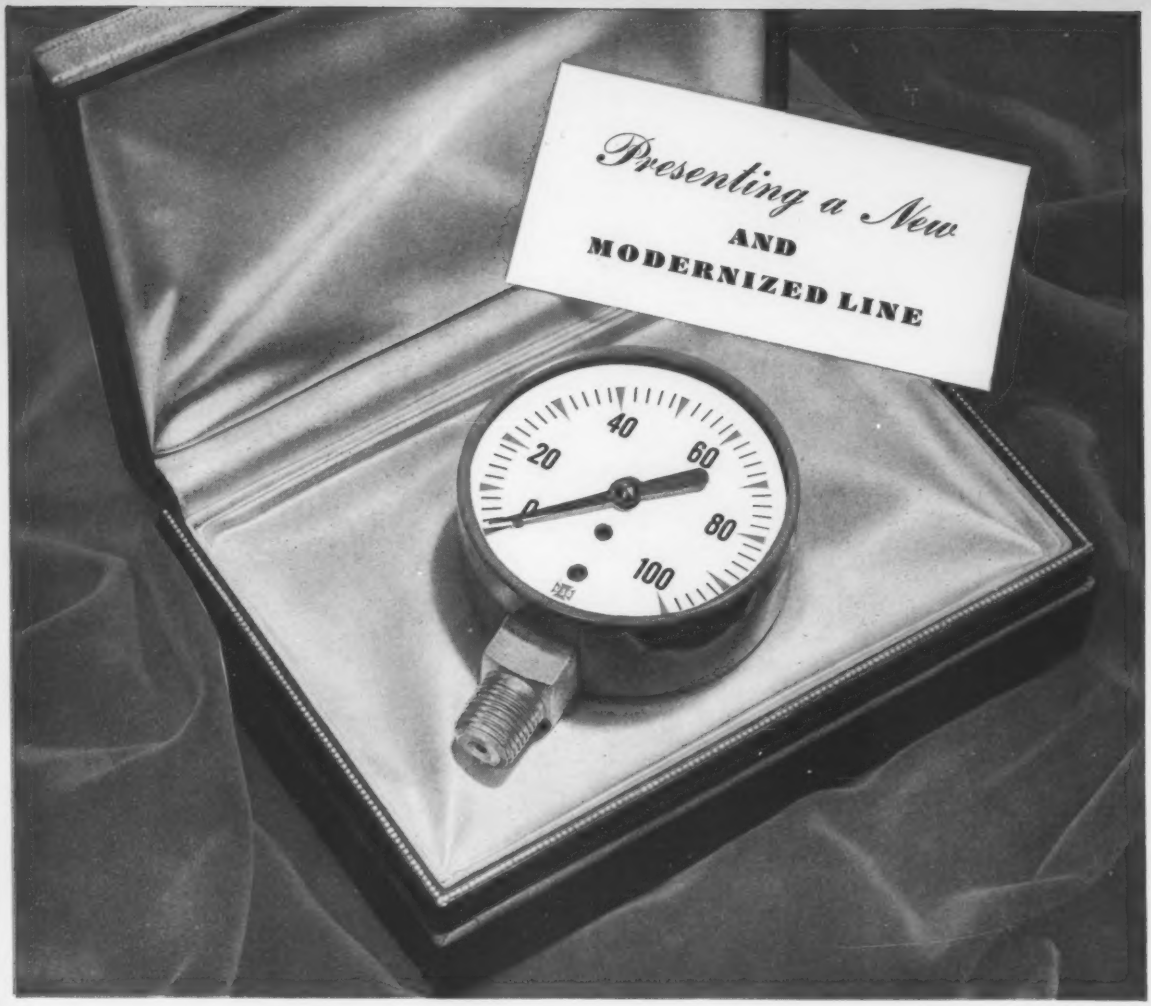
COPPER AND BRASS INCORPORATED

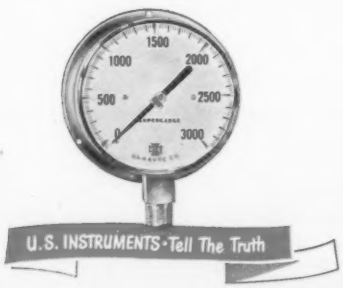
Founded by Paul Revere in 1801

230 Park Avenue, New York 17, New York

Mills: Baltimore, Md.; Chicago, Ill.; Detroit, Mich.; New Bedford, Mass.; Rome, N. Y. — Sales Offices in principal cities, distributors everywhere

Listen to Exploring the Unknown *on the Mutual Network every Sunday evening, 9 to 9:30 p. m., EST*





THE NEW U. S. GAUGES have radical improvements, offered for the first time to industry! Precision accuracy retained as always—but functional styling by one of the country's outstanding designers, in collaboration with our own engineers, has produced a complete line of gauges infinitely superior . . . in *appearance* . . . in *readability* . . . in *sturdy construction.*

Notice the colors, the visibility of graduations, the pleasing lines. Inspect the individual working parts and you will see the product of years of good engineering and research effort, resulting in longer life under adverse operating conditions, and incorporating higher quality and durability.

These significant advances are important to you as a user! For years, 6 out of 10 manufacturers of original equipment have specified U. S. Gauges. This ratio is bound to grow.

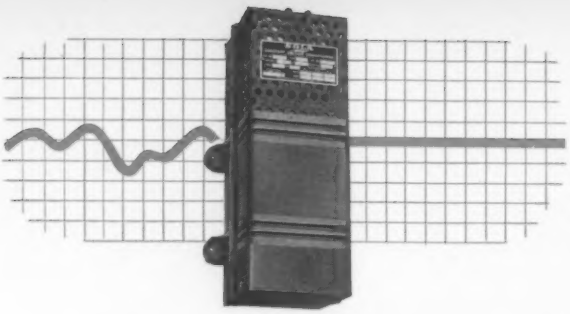
UNITED STATES GAUGE, SELLERSVILLE, PA.

USG

UNITED STATES GAUGE

DIVISION OF AMERICAN MACHINE AND METALS, INC.

Manufacturers of Pressure, Temperature, Flow and Electrical Measuring Instruments



Constant Voltage

. . . is always available to equipment protected by a SOLA CONSTANT VOLTAGE TRANSFORMER

Are you looking for new ways to—

1. Increase the efficiency of your product?
2. Lower its cost to the user?
3. Reduce maintenance expense?

Much of this can be accomplished with a SOLA Constant Voltage Transformer built into your product. Now, more than ever before, electrical equipment needs line-voltage protection.

Stable voltage, direct from supply lines, is *not* available to the users of your equipment. Voltage may vary as much as 15-20% from the rating on your label. *Your* equipment will be blamed for the inefficient operation that results.

Build a SOLA Constant Voltage Transformer into your equipment and operating voltages will always be within ± 1% of rated requirements regardless of line fluctuation as great as 30%.

There is a wide range of sizes and capacities in SOLA Constant Voltage Transformers which can be built specifically for your product. The savings you can make through the elimination of other components and anticipated service calls, plus greater operating efficiency and satisfaction to your users, merit your consideration of SOLA Constant Voltage Transformers as a component in your equipment design.

SOLA Constant Voltage Transformers are fully automatic with no tubes, or moving parts. They require no supervision or manual adjustments.

There's a new SOLA handbook that describes fully the theory, operation and use of SOLA Constant Voltage Transformers. Write for your copy.

Ask for Bulletin 25CV-102

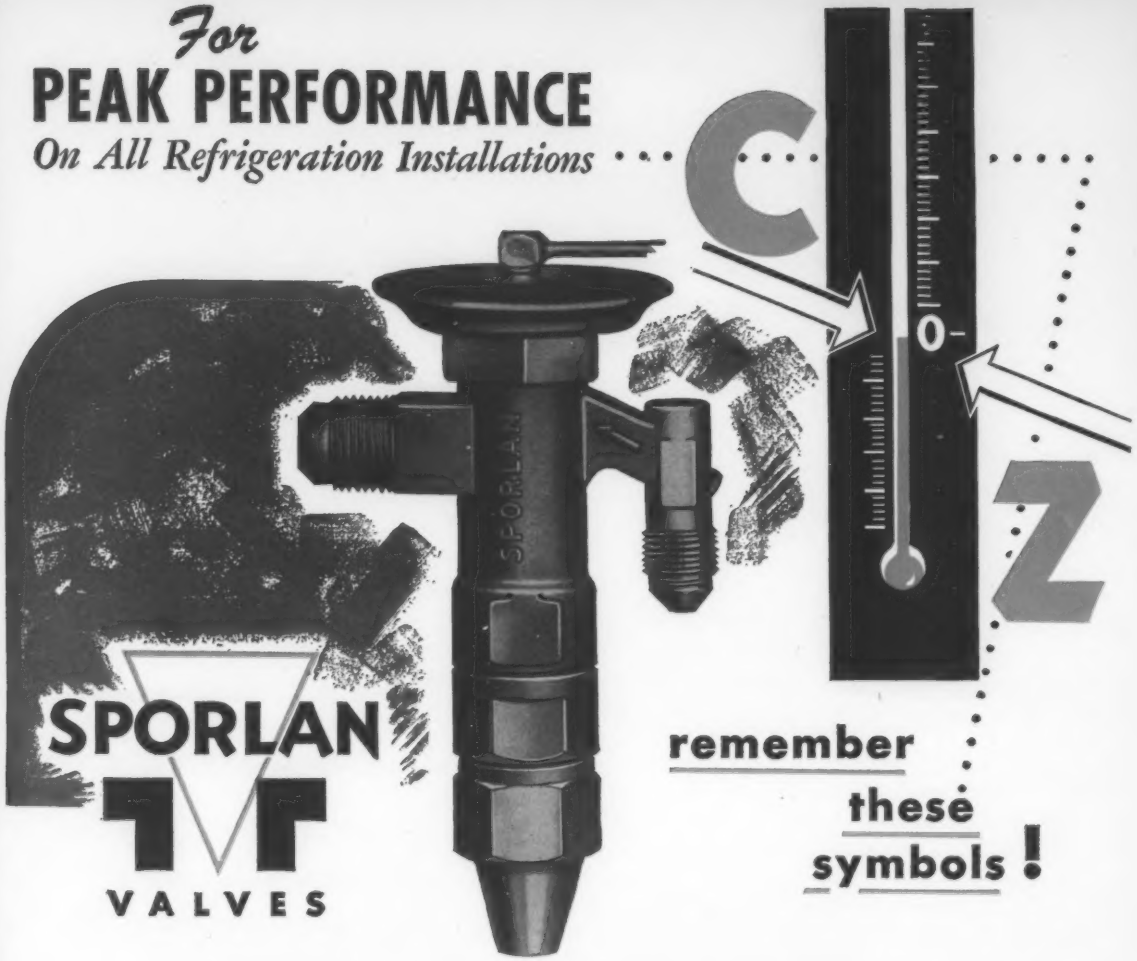
SOLA Constant Voltage Transformers

Transformers for: Constant Voltage • Cold Cathode Lighting • Mercury Lamps • Series Lighting • Fluorescent Lighting • X-Ray Equipment • Luminous Tube Signs Oil Burner Ignition • Radio • Power • Controls • Signal Systems • etc. **SOLA ELECTRIC COMPANY, 2525 Clybourn Avenue, Chicago 14, Illinois**

For

PEAK PERFORMANCE

On All Refrigeration Installations



SPORLAN VALVES

remember these symbols!

SPORLAN "C" CHARGE FOR SUCTION TEMPERATURES Above ZERO

SPORLAN "Z" CHARGE FOR SUCTION TEMPERATURES Below ZERO

Your Sporlan wholesaler stocks the full line of Thermostatic Expansion Valves with Selective Charges to meet any operating conditions. Always consult with him before ordering and be assured of peak performance on all installations.

Sporlan Manufactures
SOLENOID VALVES
SOLENOID PILOT CONTROLS
MODULATING PILOT CONTROLS
REFRIGERANT DISTRIBUTORS
and the only
THERMOSTATIC EXPANSION VALVES
with SELECTIVE CHARGES

SPORLAN VALVE COMPANY

3723 COMMONWEALTH AVENUE
ST. LOUIS 17, MISSOURI

The Ansul Research Staff

REPORTS ON:

SLUDGES

Approximately 90% of the sludges produced in refrigerating systems are due to moisture. The exact cause can always be determined by analysis, but the appearance of the sludge (see photos) is usually indicative of the cause.

SLUDGE DERIVED FROM MOISTURE—If water is present in a machine, the nature of the sludge depends upon the type of refrigerant and length of time the water is present. All refrigerants . . . sulfur dioxide, methyl chloride, Carrene and "Freon-12" . . . react with water to produce corrosion products characteristic of each. To prevent sludge, the amount of water present in a refrigerating system must be small enough to avoid ice separation and corrosion. For "Freon-12" and methyl chloride, a quantity of water approximately .05% by weight will cause corrosion; the limit is somewhat higher for sulfur dioxide.

SLUDGE DERIVED FROM OILS—Oil sludges are characterized by total or partial solubility in carbon tetrachloride, gasoline and similar solvents. It is generally presumed that oil sludges are due to two causes: (1) an interaction between the unsaturated constituents of the oil and the refrigerant; (2) a breakdown of the oil due to heat, oxidation, friction, etc.

SEND FOR "SLUDGES," by Ansul Research Staff

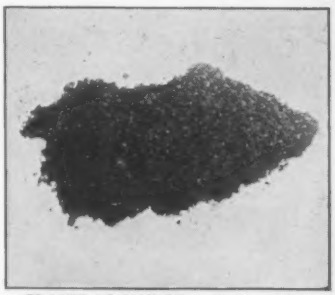
A detailed analysis of the refrigeration sludge problem.

LIQUID Sulfur Dioxide ANSUL®

LIQUID Methyl Chloride ANSUL®

®REG. U. S. PAT. OFF.

FOR REFRIGERANTS, SEE YOUR ANSUL JOBBER



GRANULAR SLUDGE . . . due to moisture

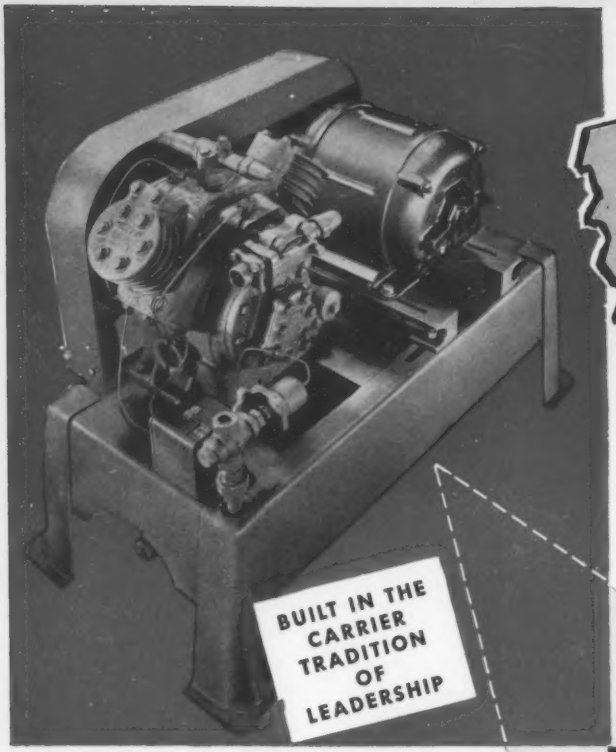
FLUID SLUDGE . . . due to oil

HARD SLUDGE . . . due to moisture and oil

ANSUL CHEMICAL COMPANY

MARINETTE, WISCONSIN

DISTRIBUTORS FOR KINETIC'S "FREON-11," "FREON-12," "FREON-21," "FREON-22" AND "FREON-113"



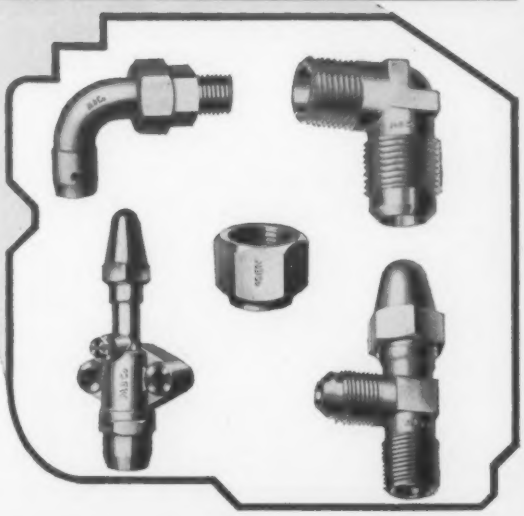
CARRIER USES MUELLER BRASS CO. VALVES AND FITTINGS IN THEIR CONDENSING UNITS

THESE PRODUCTS MUST BE GOOD!

CARRIER CORPORATION
SYRACUSE NEW YORK

Condensing Units built by Carrier Corporation of Syracuse, N.Y. are designed primarily for Refrigeration and Air Conditioning duties that are the most severe services to which compressors can be put. For Air Conditioning, heavy loads of short duration with long stand-by periods require a unit with considerably more stamina than is ordinarily needed for continuous operation.

Using "Freon-12" as a refrigerant, these condensing units have a capacity range from 600 BTU to 1,100,000 BTU per hour. Available in air-cooled, water-cooled, or evaporative condenser types, this equipment finds application for controlling temperature and humidity in all types of businesses and industries. Restaurants, stores, residences, offices, hotels, markets, locker plants and commercial food freezing, storage vaults, farms, packing houses, water cooling, armament factories, marine and naval use, pharmaceutical and candy factories and process industries are but a few of the instances in which the Carrier line of condensing units has found wide-spread adoption.



BUILT-IN QUALITY...TIME-TESTED PERFORMANCE

Mueller Brass Co. Valves, Fittings and Accessories for mechanical refrigeration have a well-earned reputation for built-in quality and time-tested performance. They are manufactured specifically for mechanical refrigeration work. THEY ARE USED BY ALL OF THE LARGEST MANUFACTURERS THROUGHOUT THE UNITED STATES. Mueller Brass Co. products must be good!

MUELLER BRASS CO.
PORT HURON, MICHIGAN

AGALOY Tubing

You may be sure of tubing with proper forming and bending qualities when you buy AGALOY

Consider these reasons—

1. **Careful annealing.**
2. **High strength.**
3. **Corrosion and heat resistant.**

Accurate, cold drawn AGALOY tubing manufactured in seamless and welded is available in the following metals—

- **L NICKEL**
- **INCONEL**
- **NICKEL**
- **MONEL metal**
- **18-8 STAINLESS**

Sizes 5/8-inch O. D. and smaller.

For all *small tubing* requirements AGALOY manufactures cold drawn low carbon, high carbon and alloys in sizes up to and including 5/8-inch O.D. *Write for catalog.*

AGALOY TUBING COMPANY • **75 WEST STREET, NEW YORK 6, N. Y.**

Chicago Office: 221 North La Salle Street, Chicago 1, Illinois • *Mills:* Springfield, Ohio

be sure

YOUR REFRIGERANT

IS DRY

use

JAY CEE
SILICA
GEL

Get that "last drop of water" out of your refrigerant. Use Jay Cee Refrigeration Grade Silica Gel in your dehydrating cartridges. By careful comparative tests Jay Cee Gel has been found to be a superior dehydrant.

It instantly dries methyl chloride, sulphur dioxide, freon and other refrigerants. Prevents corrosion and ice formation. It is chemically inert . . . removes acids from the refrigerant . . . is not affected by oil . . . has high particle strength and does not break down in use. Because of great pore surface area (1 cu. in. = 50,000 sq. ft.) has highest moisture adsorption capacity. Developed especially for the refrigeration industry under strict laboratory control. Write for complete bulletin and prices.

JAY CEE

JOLIET CHEMICALS, LTD.

118 INDUSTRY AVENUE JOLIET, ILLINOIS

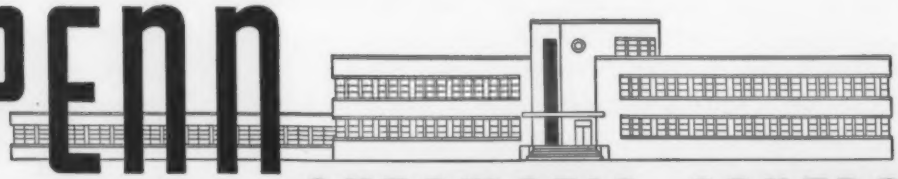
You are always in our plant

You, the man who installs and is responsible for the performance and efficiency of refrigeration equipment! You, who entrust the reputation of your product to the operation of PENN Controls! *You are always in our plant!*

At PENN, your needs . . . your desires . . . the things you want done are most *important.* PENN test engineers are paid to be critical . . . paid to find fault . . . paid to assure you the best automatic controls that can be built. For example, here, one of these engineers analyzes contact mechanism action of two refrigeration controls on a vibrator machine by means of a stroboscope. He is guarding you against the vicious chatter . . . the destructive vibration that burns contacts, cuts down control life and damages relays and contactors.

You can rest assured that every PENN refrigeration control is designed, built and *thoroughly tested* to assure highly satisfactory operation under all normal service conditions. Controls are available for temperatures as low as −150° F., and for pressures as low as 28″ vacuum. Ask your jobber for PENN Controls—or write direct. There is no obligation. *Penn Electric Switch Co.,* Goshen, Indiana. Export Division: 13 E. 40th Street, New York 16, U. S. A. In Canada: Penn Controls, Ltd., Toronto, Ontario.

PENN



AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, ENGINES, PUMPS AND AIR COMPRESSORS

BTU's

News • Laws • Trends

Private Brand Prices. Top retail price of $147.50 in the first zone for five private brand models of 1946 refrigerators has been set by a recent amendment to OPA's MPR 598.

Makes, brands, and model numbers listed in the amendment to Section 24 of Appendix A are: Associated Merchandising Corp., A.M.C., A-736 S; Cussins & Fearn, Whitehouse, C-736 S; Edwards Stores, Edwards, E-736 S; Gamble-Skogmo, Inc. and Western Auto Supply Co., Coronado, 44-1993; and Goldblatt Bros., Freezmaster, GB 736 S. Ceiling in the second zone for the A.M.C. and Coronado brands has been pegged at $157.95.

Locker Plants and Home Freezers. Denial that the National Frozen Food Locker Association is in the home freezer business or that the association itself is sponsoring any freezer for sale by its member locker plant operators has been issued by Albert Guggedahl, executive secretary, in a statement to the association's officers and directors as well as to manufacturers.

Last fall it was announced that a committee of the association had selected a 4-cu. ft. home freezer retailing at less than $200 which could be sold by locker plant operators, but Mr. Guggedahl made it plain, in his statement, that the association has no financial interest in the project or any other home freezer line unless they so desire.

Westinghouse Patents Voided. Nine patents relating to refrigeration equipment owned by Westinghouse Electric Corp. have been ruled invalid by the Third United States Circuit Court of Appeals. The ruling, handed down by Judge Gerald McLaughlin in the patent suit brought by Westinghouse against Crosley Corp., held that the patents involved were in reality products of mechanical skill and not patentable inventions.

$103,814,820 Market. A $103,814,820 market for refrigeration and air conditioning equipment looms in the hotel field, according to a recent survey conducted by the American Hotel Association which indicates that hotels throughout the nation plan to spend that amount to rehabilitate, modernize, and replace their existing equipment.

Returns from 12,868 hotels showed they needed to spend $5,997,787 on quick-freezers, $2,669,933 on ice cubers, $18,943,344 on other refrigeration equipment, and $76,203,765 on air conditioning to bring their establishments up to proper postwar standards.

Co-op Refrigerators. First household refrigerator manufactured to its own specifications is one of several products scheduled for early appearance in a $25,000,000 postwar appliance program being carried out by National Cooperatives, Inc.

A 9-cu. ft. model, this box was designed by Barnes & Renikee of Chicago and is equipped with a 1/6-H.P. Tecumseh condensing unit and a Bohn Aluminum & Brass evaporator. The cooperative has contracted for 20,000 of these units, with an option for 10,000 more, it is reported. They will be sold under the "Co-op" trade name.

National Cooperatives is a federation of 20 regional wholesale cooperative associations in the U.S. and Canada serving more than 5,000 local cooperatives said to represent about 1,500,000 consumer members.

REMA Conference Meeting. Just a note here to remind you that the "all-conference" meeting which Rema has on its spring agenda will be held at the Hotel Stevens, Chicago, on March 4 to 6. This will take the form of one of Rema's earlier meetings, and will be held jointly with wholesalers and service men. Booths will be set up for private conferences on sales and installation problems.

New Household Unit Maker. Federal Telephone & Radio Corp., subsidiary of International Telephone & Telegraph Corp., New York City, has confirmed the report that Norman Bel Geddes will design and style its line of refrigerators, radios and washers. While the company plans a full appliance line, only the three items mentioned are expected to be introduced during the next year. Distribution plans are now in the making, with present thinking in favor of a distributor set-up operating within county lines.

Cooler Traveling Ahead. Air conditioning of transportation equipment, from private automobiles to airplanes, from trailers to trolleys, and from buses to railroad cars, is due for a major upswing within the next two years, according to a round-up of current reports.

From one quarter it is reported that some new automobiles—perhaps some of the '47 or '48 models—may even have refrigerators for beer. And airlines soon will introduce complete meals that are quick-frozen on the ground, then reheated and cooked on special equipment in the air.

Bank Backs Instalment Credit. A new time-payment plan which ends the responsibility of store operators for their customers' credit has been placed into effect by the Buffalo (N. Y.) Industrial Bank.

Called the "Bankway Plan," this new system requires the individual to establish his credit at the bank, which then decides the amount of installment buying he can do. He receives a credit card, renewable annually, and a directory of participating dealers. Any installment contract made with the dealer is signed by the customer and then sold to the bank, which collects the installments plus interest at bank-financing rates.

Approximately 200 dealers handling such major products as appliances, automobiles, furniture, boats, and airplanes are participating in the plan.

Section of Sierra's custom-building shop, where units are built to fit any customer's needs.

BUILDING CUSTOMERS *with* CUSTOM BUILDING

By Robert Latimer

Another "made-to-measure" dealership which has keyed its success into giving customers what they want

"IT'S the refrigeration dealership which can design and install refrigeration facilities to meet a particular purpose at lowest cost which will have the finest future." Those are the words of D. E. Brown, head of Sierra Refrigeration Co., Fresno, Calif., and they sum up the operating policies of this fast-growing dealership.

Mr. Brown, who established Sierra Refrigeration Co., with E. C. Hussey and E. V. Miley as partners two years ago, feels that firms which are without facilities for meeting every type of customer problem may do well during the seller's-market period of the next year or so, but that after the refrigeration industry levels off to competitive merchandising, they'll find it tough sledding. "We set up our organization from the outset to serve the customer who has peculiar refrigeration problems," he pointed out, "on the theory that by building up a reputation for well engineered custom jobs, we will be in excellent position to get the business when many contractors are bidding for work."

In essence, Sierra Refrigeration is a manufacturing dealership specializing in custom work, and built with complete facilities for every phase of it. With Mr. Hussey, a cabinetmaker and builder, heading the construction department, and Mr. Miley in charge of sales, the organization contains complete installation and service shops, a woodworking plant, parts room which rebuilds and repairs refrigeration compressors, paint shop, and a large display room split between Sierra's own products and two lines of commercial boxes for which the firm is Fresno distributor. Mr. Brown, a veteran refrigeration engineer, is in charge of the refrigeration end, including estimating, installations and design.

The company naturally opened up at a bad time. "The supply situation was discouraging," Mr. Brown said, "but we felt it necessary to entrench ourselves in the business early in order to get necessary franchises for later distribution, and more important, an introduction to parts suppliers and manufacturers. We began advertising from the start, and were immediately swamped with business which has continued without a break ever since. We invite calls and spend a lot of time with customers we will not be able to service for many months. By operating on this basis we were able to obtain two franchises and to start the flow of parts and equipment which we're receiving now."

In the early days, the ability to rebuild and re-use old compressors, coils, controls, etc., kept installation

work going. "We used rebuilt equipment on 90% of our installations through the war," Mr. Brown said, "and I see no reason why we cannot continue to do so in peacetime where the occasion warrants it. We engineer every job to handle its load with power to spare, and in most instances rebuilt equipment has been as efficient as new."

Adhering to the guiding policy of "all custom work," Sierra Refrigeration has completed a score of remarkable San Joaquin Valley installations, all of which have been well publicized. All estimating work is done by Mr. Brown or Mr. Miley, and "merchandising" to date has consisted of referring prospective customers to those already served. With an eye to the future, the partners plan a staff of outside salesmen calling on grocery stores, freezing plants, bars, lunch counters, restaurants, poultry farms, food packers, etc., but will not go into this until supply and demand level out. Each job sold up to the present has been the result of an inquiry and an estimate furnished by calling on the prospect, which largely describes the future process planned.

The Sierra shops are set up for complete cabinet manufacture for any size from 10 to 400 cu. ft., and to handle every phase of an installation except certified electric wiring. The repair shop can handle anything but sealed units, and is busy normally building oversize condensers for the high heat loads which Fresno's climate puts on any refrigeration system. "We can build any type of commercial refrigeration, and so far have split our work almost equally between high and low temperature jobs," Mr. Brown pointed out. "Our setup is sufficiently versatile to build a complete backbar for a cocktail lounge or a service counter and reach-in box to match for restaurants. We want to contract complete installations in every case, since we have the facilities for it, and the unit sale is invariably much higher and more profitable than if we sub-let part of a job to other contractors."

Mr. Brown recently completed estimating a job which consists of a 24-foot reach-in unit to be built inside a 15x10 walk-in box with a sharp freezer installed at the side. These three units, including four entrances into refrigerated areas, had to be housed in a small space in a rural grocery store, and were plotted efficiently on a single call by Mr. Brown and Mr. Miley.

A typically interesting recent installation was a combination holding room and sharp freezer built for a large poultry farm south of Fresno. This organization, raising approximately 20,000 turkeys yearly for Thanksgiving and Christmas markets, planned to save costly extra feeding for its birds by refrigeration applied after killing the turkeys in their prime season. "Here was an opportunity for us to effect a real saving," Mr. Brown said. "Each turkey eats a pound or more of grain a day, which amounts to 20,000 lbs. per day which must be fed them after the prime period, if they are kept alive for the market. By killing and butchering the birds at prime, several weeks ahead of the Thanksgiving market, tremendous savings could be realized—actually enough to pay the cost of refrigeration in two seasons or less."

Studying the problem both from operation and distributing standpoints, Mr. Brown came up with a combination of holding room and deep freezer which filled all requirements. This, enclosed in a separate building at the poultry farm, consists of a 16x20 foot walk-in cooler of hardwood, insulated with 8-inch wool-filled walls, and lined with sanitary metal storage racks in 12 tiers around all four walls. This is utilized as a holding room.

For sharp freezing of poultry, Sierra Refrigeration designed and built a 376 cu. ft. sharp freezer as an integral part of the holding room—built against the back wall which forms the rear of the freezer. Turkeys

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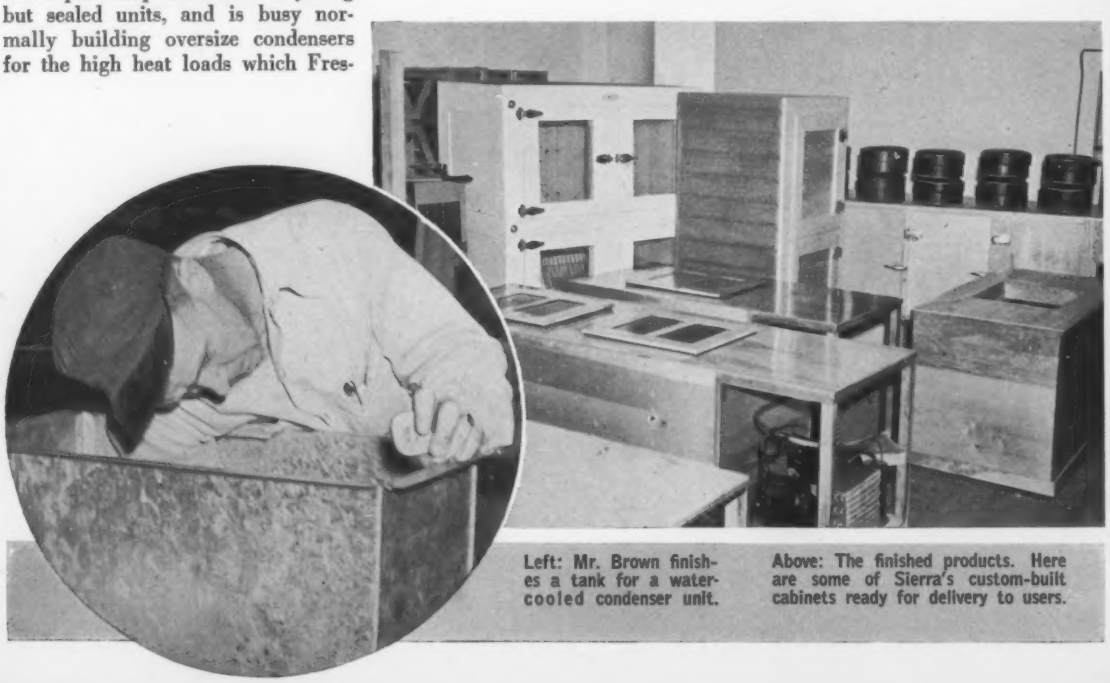

Left: Mr. Brown finishes a tank for a water-cooled condenser unit.

Above: The finished products. Here are some of Sierra's custom-built cabinets ready for delivery to users.

THE { WHEN / WHERE / WHY / HOW } OF CAPILLARY

By George H. Clark

IN GENERAL, there are about five basic types of pressure reducing devices used in refrigeration for reducing the pressure of the condensed refrigerant to the pressure at which it is to boil and thereby pick up heat.

The first expansion valves were hand-operated needle valves used in large commercial refrigerating plants. In such plants, the compressor, either steam or electrically driven, operates continuously, and the adjustment of the expansion valve may be made so as to maintain a desired back pressure in the evaporator coils; or the valve may be adjusted to maintain a frost line close to the compressor. Such a valve is unsuitable for automatic refrigeration, although its action is very nearly duplicated by capillary tubes as used now. In our study of pressure reducing devices, the capillary tube will be considered, rather than the hand-controlled expansion valve.

Introduction of domestic automatic refrigeration brought the automatic expansion valve. This type of valve automatically adjusts the valve openings so as to maintain a predetermined back pressure in the evaporator during the periods when the compressor is in operation. This type of pressure reducing valve has various advantages and disadvantages as compared with other types.

A third type of pressure reducing device is the thermostatic expansion valve, which is more "automatic" than the automatic expansion valve. This type of valve has operating characteristics which make it suitable for multiple evaporator systems and may have some advantages for single evaporator systems.

A fourth type of pressure reducing device is the high side float valve, which regulates flow from the high pressure side of the system to the low pressure side, according to the level of liquid in the high pressure side. This is inherently a single evaporator valve, and in operation is very similar to the capillary tube.

The fifth type of pressure reducing device is the low side float valve. This valve regulates flow into the evaporator according to the level of liquid in the evaporator itself. This valve is suitable for multiple installations, and has also been used extensively for single unit evaporators.

Capillary Tube Systems

The simplest capillary tube system consists of the elements shown schematically by Figure 1. In this system the capillary tube may consist of 25 to 30 feet of .040 bore copper tubing. The refrigerant used may be Freon-12, and the application one in which temperatures of 0° to 20° are to be maintained in the evaporator. Figure 2 shows characteristic pull-down and operating curves for such a system.

It will be noted that a short time after the machine shuts down, the head pressure (or compressor discharge pressure) and the suction pressure equalize. For many of the new domestic type machines this is a distinctly advantageous feature, as

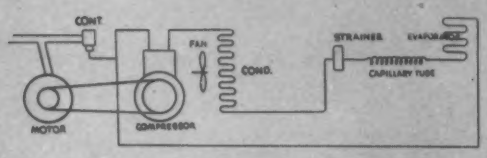

Fig. 1. Simplest type of capillary tube system consists of elements shown schematically above.

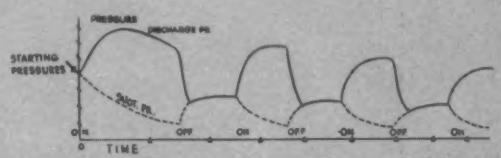

Fig. 2. Characteristic pull-down and operating curves for type of capillary system shown in Fig. 1.

TUBE SYSTEMS ★

What are their advantages? How is their size determined? For what type of circuits are they suitable? This article tells you

this unloads the compressor at the time it starts. This allows use of a motor which has a low starting torque. The cheapest type of motor made and one which works well for sealed motor and compressor units is the split phase type of motor without capacitor.

The capillary tube inherently adapts itself to high-production, low-cost sealed unit use, contributing to low cost in various ways. First, a split phase motor can be used due to the unloading feature. Second, no receiver is required. In fact, a receiver, if not properly arranged, may cause an added inefficiency to the system. Third, the capillary tube itself is cheaper than any other type of pressure reducing device.

Stop and start of the refrigerating cycle may be controlled by a pressure control tied into the low pressure side of the system, or a temperature control may be used.

A disadvantage of capillary tubes is that they have to be selected according to the capacity of the condensing unit, the desired temperature, and the refrigerant used. Condensing units of high capacity will require shorter capillary tubes than the lower capacity condensing units. For one condensing unit the capillary tube should be shorter when the application is for high temperature work (30° to 50°) than when the application calls for temperatures ranging lower, such as 10°F. and below. For one condensing unit capacity, the size of the capillary tube may be decreased in length if the refrigerant used has high viscosity and if the latent heat of the refrigerant is low, such as F-12. Refrigerants such as sulphur dioxide, methyl chloride, and others do not work as advantageously with capillary tubes as does F-12.

Refrigerant charge for a capillary tube system is critical in that with too much refrigerant in the system a flood-back of liquid to the compressor will occur. With too little refrigerant the evaporator will only be partially refrigerated. Quantity of refrigerant required depends upon the capacity of the evaporator and the volume of the low side of the system.

On one occasion, the author made up a water cooler using 10 feet of ¼" O.D. copper tube for the evaporator and using a conventional belt-driven compressor. Methyl chloride

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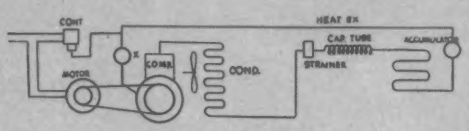


Fig. 3. Valving arrangement designed to even motor-compressor load at varying temperatures.

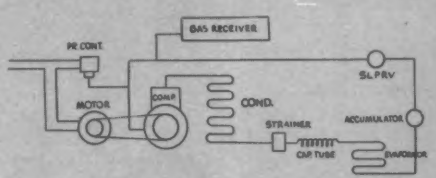


Fig. 4. Hook-up suggested to prevent freezing in water cooler or similar type applications.

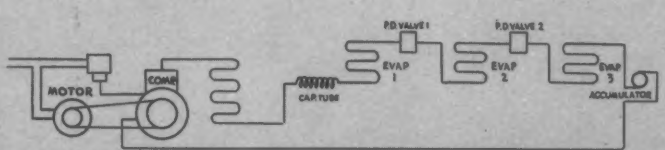
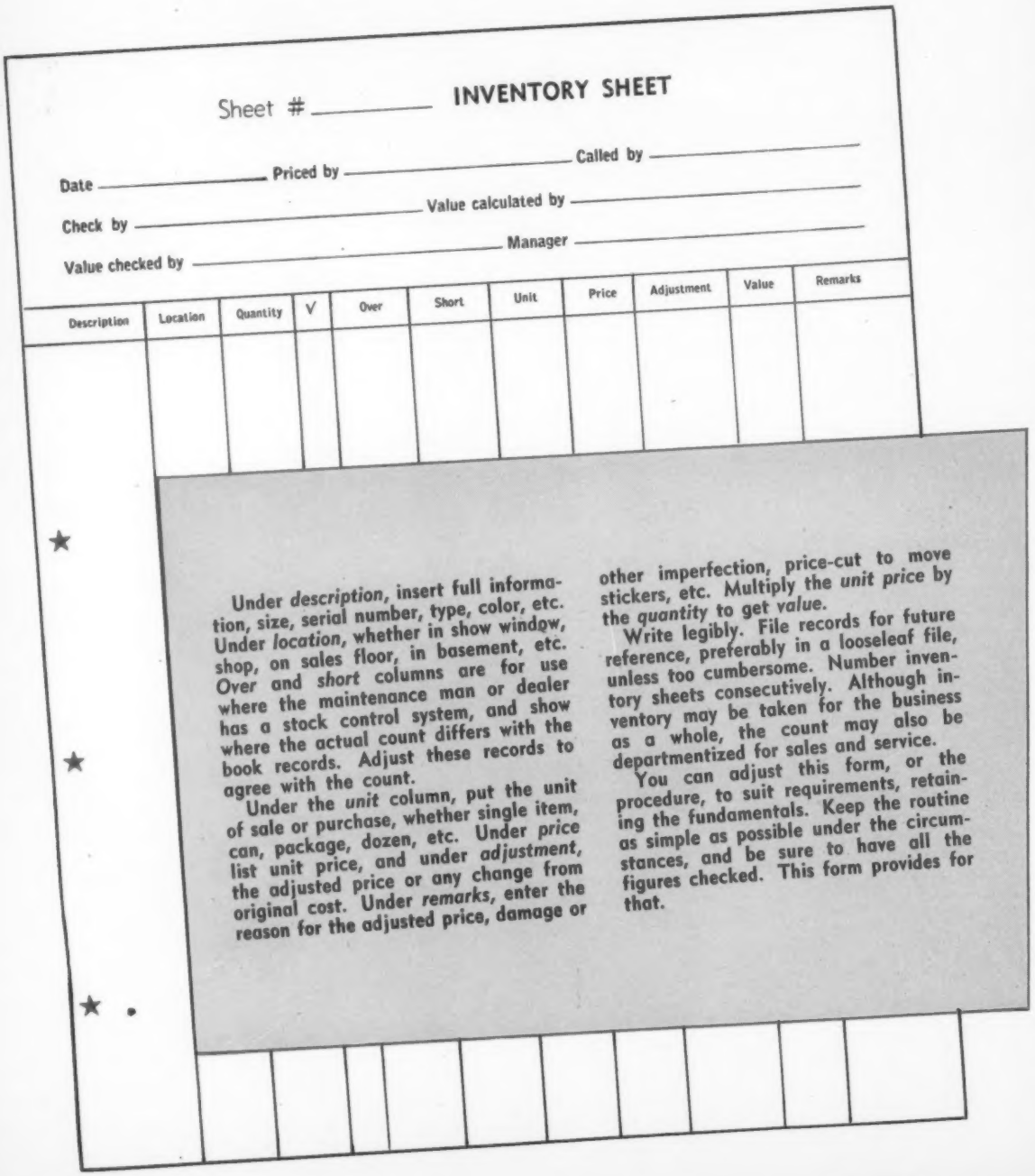


Fig. 5. Illustrating hook-up of a multiple-temperature job using two loaded valves to obtain the different evaporating temperatures.

ARE YOUR INVENTORY METHODS



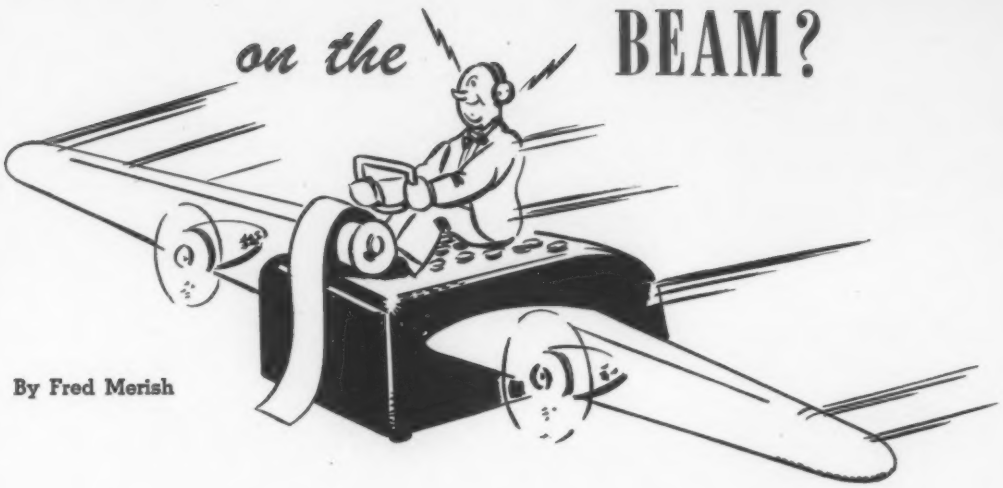
Under *description*, insert full information, size, serial number, type, color, etc. Under *location*, whether in show window, shop, on sales floor, in basement, etc. *Over* and *short* columns are for use where the maintenance man or dealer has a stock control system, and show where the actual count differs with the book records. Adjust these records to agree with the count.

Under the *unit* column, put the unit of sale or purchase, whether single item, can, package, dozen, etc. Under *price* list unit price, and under *adjustment*, the adjusted price or any change from original cost. Under *remarks*, enter the reason for the adjusted price, damage or other imperfection, price-cut to move stickers, etc. Multiply the *unit price* by the *quantity* to get *value*.

Write legibly. File records for future reference, preferably in a looseleaf file, unless too cumbersome. Number inventory sheets consecutively. Although inventory may be taken for the business as a whole, the count may also be departmentized for sales and service.

You can adjust this form, or the procedure, to suit requirements, retaining the fundamentals. Keep the routine as simple as possible under the circumstances, and be sure to have all the figures checked. This form provides for that.

on the BEAM?



By Fred Merish

Casual methods of appraising inventory can cost you estimating profits and net worth, and in extra taxes that proper methods would help you avoid. Here, in simple terms, are 10 cardinal points to remember

INVENTORY is an important element in appraising profits and net worth. If inventory is inaccurate, so are net worth and net profit. Because its computation is not as definite and more involved than the calculation of salaries or cash in bank, inventory should be given more consideration than usually awarded it by most refrigeration men. Many of them get off the beam on profits because inventory is calculated incorrectly; many pay more tax in a current year for the same reason. The subject, therefore, rates exploration.

Like depreciation, the calculation of inventory requires good judgment because the book value of these accounts may not be actual value. Like depreciation, there are numerous ways to figure inventory: first-in, first-out, last-in, first-out, popularly called "fifo" and "lifo" methods; average cost, basic or normal stock, retail inventory, cost, and cost or market, whichever is lower.

Some of these methods work alright in some organizations, all wrong in others. The baby of them all is "lifo", created to level off the peaks and valleys caused by an increase or decrease in the market value of merchandise and materials at the end of a period when inventory is taken. A businessman may do a good managerial job throughout the year, and then along comes a dip in market prices. If he has a sizable inventory, he may have a sizable loss, which reflects itself in a low profit, when, by all the rules of the game, he should have registered a good profit. "Lifo" was created to stop this, but the war came along and played havoc with the plan.

The essence of good accounting is simplicity. The test is whether your system reflects true profits and permits adequate business control.

Ten Things to Think About

There are 10 important things to remember in connection with inventory valuation. They are:

1. Value inventory by the same method at the beginning and the end of a period. Be consistent from year to year.

2. List all items on inventory sheets—quantity, price and unit, also location. File these records for future reference. Have one man record items and another check his work to assure accuracy. Extension and pricing should also be checked. Do not include items for future delivery to which you have not taken title. Include any item to which you have title, even though in transit or not on hand.

3. See that the method used clearly reflects income. If you over-cost inventory, profits will be higher; if you under-cost inventory, profits will be lower—on paper—but the income tax will vary in real money.

4. You cannot change from one method to another without the consent of the Commissioner of Internal Revenue.

5. Take inventory as often as possible. Annual inventories in these fast-moving days, when prices may fluctuate widely, are hardly likely to show true profit or supply adequate information for cost control. Quarterly or semi-annual inventories are recommended from now on—or stagger the count, so much each month.

6. Estimated inventories for the monthly profit-and-loss statement are just estimates; hence, the monthly net is also an estimate. Monthly statements are prepared to keep the businessman appraised of the trends of operating ratios and profit—information of great importance, even though the profit is not computable to the dollar. You should know which way your business is heading from month to month, because that's the only way you can effect maximum cost control.

7. Any change in inventory valuation will change the cost of sales ratio for the period, and obscure your comparative analysis from period to period, unless you show the

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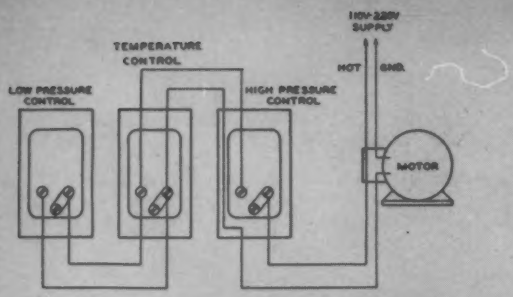


Fig. 7a: High pressure control in series, temperature and low pressure controls in parallel.

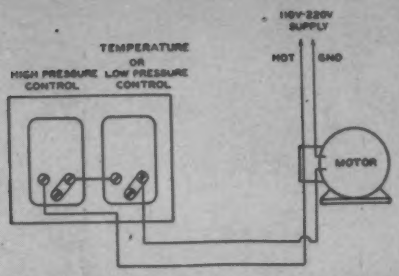


Fig. 7b: Combination high pressure control with either temperature or low pressure control in series.

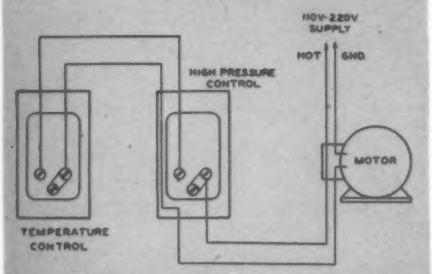


Fig. 7c: High pressure control in series with temperature control.

"Liquid"

Part 2 of a series outlining servicing and installation problems of soda fountain equipment, prepared especially for readers of The Refrigeration Industry

By J. G. Praetz

General Service Manager
Fountain-Cabinet Division
The Liquid Carbonic Corp.

II
DX Refrigeration System 1940-1941 (Continued)

A FRIGIDAIRE or a White-Rodgers temperature control is sufficient to control the condensing unit operation and maintain proper temperature conditions on all "Lifetime" DX fountain installations except those which have very heavy water load requirements. See Figure 7.

Where heavy water load conditions prevail, a low pressure switch should be connected in parallel with the temperature control and given settings not lower than 35 lbs. cut-in and 10 lbs. on the cut-out.

The No. 1122047 temperature control was given a factory setting of approximately 0° cut-out and 4° cut-in and will have to be readjusted according to local ice cream conditions. The minimum differential on this control is 3° and the factory setting on the differential must be increased to 6°.

This 6° differential can be obtained by turning the differential adjusting screw one complete turn counter-clockwise. The White-Rodgers temperature control may be readily adjusted to give these settings.

It is recommended that the service engineer start up the condensing unit with both the soda fountain water cooling section and the syrup rail dry in order to shorten the initial pull-down on any factory adjusted fountain which has a water bath type cooling section for plain and soda water and a water type of syrup cooling arrangement.

The service engineer should permit the condensing unit to operate on the dry refrigeration coils of both these sections so that virtually the full capacity of the condensing unit will be available to pull down the ice cream section hold-over solution or plates as the case may be, removing the heat from this latter section as well as the entire fountain.

Condensing unit should operate for at least 2 hours, and longer if possible, before putting the water in the syrup rail and water cooling sections.

Advantage of this method of starting up is that the head pressure will be lowered much faster on the condensing unit and, consequently, its capacity to remove heat maintained at a maximum due to the lower head pressure. This results in a faster initial pull-down on the entire fountain.

It will also be possible to open the condensing unit suction valve wide sooner and thereby permit the condensing unit to operate at full capacity without overloading.

During the initial pull-down with the water cooling and syrup rail sections dry, the condensing unit has only to remove the heat and lower the temperature of the hold-over solution or plates, cool the lining and interior, and reduce the air temperature within the fountain. This will be accomplished with rapidly decreasing head pressure.

The syrup rail and water cooling evaporators will, of course, frost up. This will throttle or close off its thermostatic expansion valve, lowering the back pressure and the head pressure and result in the condensing unit pulling almost entirely on the ice cream section, rapidly lowering the ice cream section temperature.

After 2 hours' operation, most of this heat will have been removed, and

then the adding of the water bath loads will not result in as long a pull at high head pressure during the removal of the sensible and latent heat in forming the ice in the water baths.

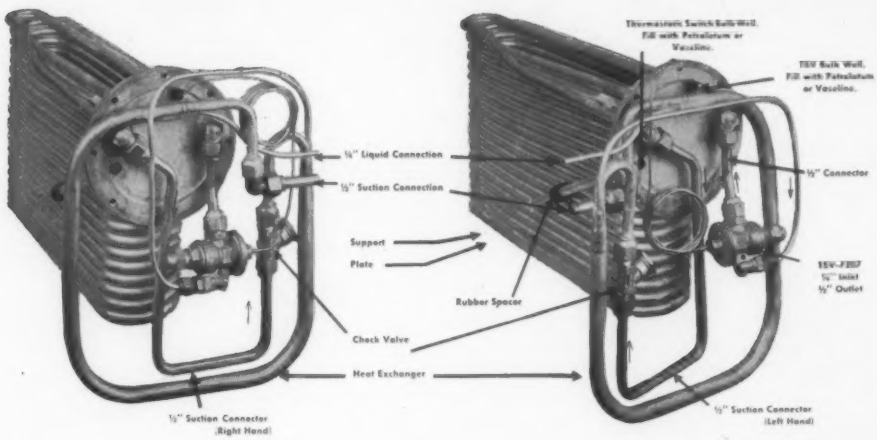
In filling the water bath with sweet water, do not fill too full, because as ice forms on the evaporator coils, the expansion of the water in freezing to ice will lift the level of the water. Fill with plain cold water to about the second block tin coil from the top and when ice has formed, the level will then just about cover the top loop of the water cooling coil.

Adjustments. Only minor changes should be made, if any, in the adjustment of the TEVF207 expansion valves over the factory setting. No attempt should be made to readjust them until the entire fountain has attained normal operating conditions.

Ice should form on all coils of the water cooling section evaporator and build out about ¼" beyond the TRV bulb. After the fountain has pulled down to normal operation and cycled a few times, if the evaporator is frosting back excessively through the TRV20 valve, the TEVF207 is open too wide and the adjusting screw should be turned clockwise (looking at the adjustment end of the valve) to close off the valve slightly. Turning the adjusting stem clockwise on the TEVF207 Automatic Products thermostatic expansion valve raises the super-heat and passes less refrigerant, while counter-clockwise reduces the super-heat (passing more refrigerant.)

Fountain Refrigeration Systems

Installation and Service



Figs. 8 and 9: Replacement assemblies for ice cream section evaporators. (Left) right hand connection; (right) left hand connection.

The TRV20 should be set at approximately position No. 3 so that ice will form just beyond the TRV control bulb with the bulb clamp set in the horizontal position.

Changes for SO2 and Methyl Chloride refrigerants. If it is desired to use SO2 or methyl chloride as the refrigerant on a DX "Lifetime" soda fountain, the only changes necessary will be to replace the two TEVF207 Freon valves, supplied as standard, with TEVS207 sulphur dioxide or TEVM207 methyl chloride valves and to change the high pressure cut-out setting on the condensing unit high pressure cut out from 185-190 lbs. to 140-145 lbs. for SO2 or to 175-180 lbs. for methyl chloride.

MX Thermostatic Expansion Valves. Frigidaire MX6AC thermostatic expansion valves for F-12 ("A" designating ¼" male flare inlet connection and "C" ½" male flare outlet connection) are interchangeable with the Automatic Products TEVF-207 valve on liquid fountains. This MX valve has the same operating characteristics as the AP valve. The valve thermostatic element is charged with a non-condensable gas so that there is no possibility of transfer of the thermostatic charge to the bellows from the bulb, should the bellows become colder than the bulb. Adjustment of the MX valve is exactly the same as for the TEVF207.

Troubles. A shortage of refrigerant in the "Lifetime" refrigerating system will show up first in the syrup rail-water cooling section. It will be impossible to properly adjust and control the ice formation if the system is short of refrigerant. The low side float or DX evaporator expansion

Continued on page 61

Building for YOUR FUTURE

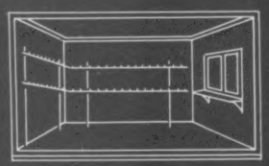
The New Albert H. Bromann Jr. Plant

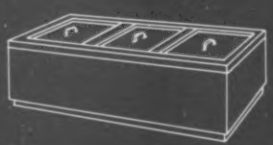
The products which will shortly flow from this new factory will add substantially to the profits and prestige of far-sighted refrigeration dealers who handle them, for this plant has been built with one thought in mind — to supply a growing demand among your customers by turning out a line that will be outstanding in the industry.

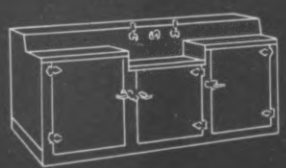
Well lighted, comfortable working areas; improved, high-speed machines; roomy storage and shipping departments — every facility for fast, high quality production has been incorporated in this new plant. We can predict with confidence that the custom built cooling rooms, industrial freezing cabinets, cold storage doors and direct draw beer dispensers fabricated here will be second to none in design, materials and workmanship.

Of particular interest to you, because it protects your profits, is the Albert H. Bromann Jr. policy of selling only through recognized, established refrigeration outlets. None of these products will be sold direct to users at any time under any circumstances.

Your customers want these units. We are ready to put them into production the moment necessary materials become available. In the meantime, we suggest you write us so that your name may be placed on file to receive complete new literature when it is ready for distribution.



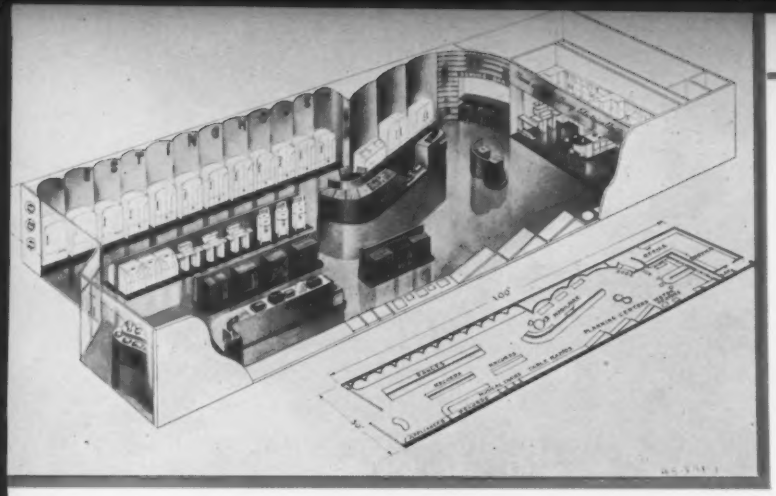




SERVING THE REFRIGERATION INDUSTRY

ALBERT H. BROMANN JR.

SCHILLER PARK, ILLINOIS (CHICAGO SUBURB)



In this design of a long, narrow store refrigerators are arranged for step-up selling. Low displays in store center allow unobstructed view of whole area.

Displaying to Sell

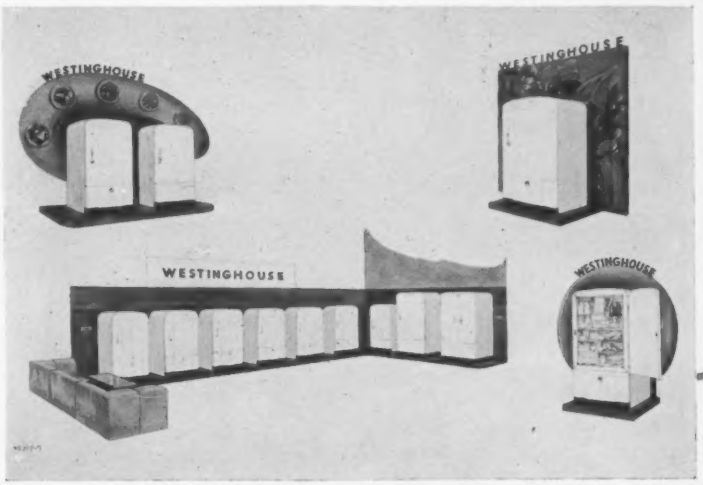
Take a good look at your store. Does it invite customers to come in, or encourage them to pass by? The right use of display is as vital to sales as advertising, sales training and store personnel

By J. G. Baird
Sales Promotion Mgr., Appliance Division
Westinghouse Electric Corp.

WE ARE more apt to give product display its rightful place in our planning and thinking if we fully appreciate the fact that the right use of display is as vital to successful merchandising as advertising, sales training and sales personnel. Good display speeds the selling job by making merchandise easy to want, easy to buy, easy to sell. The size and condition of your store, its location, the competitive situation in your neighborhood, the amount of money you have to spend, will determine the kind and number of improvements you may make. But, whether you do a simple or an elaborate job, invest thousands of dollars or just a few—the fundamentals are the same.

To begin your job of store modernization go across the street, stand on the curb, and take a good look at your store. Does it do a good job for you in competition with the other store fronts in the neighborhood? Does it tell at a glance what business you are in and who runs it? Does it look like the sort of a store that you would go to for your kind of merchandise? The job of the store front is to attract customers to your store and to serve as a frame for the display window. The treatment of the front should help accentuate the merchandise on display—should not compete with it.

After the store front has attracted the customer, it is up to the window display to stop her and convert that "passing glance" to a good second look and then get the customer to come into the store. This objective can be accomplished by the right combination of lighting, coloring and handling of merchandise. The successful window background stays in the background and pushes the merchandise into the public eye.



Illustrating a variety of display treatments for refrigerators. Any one of them, or a combination, may be used as the display theme for an entire store.

A good general lighting of the window is imperative. This may be supplemented with spotlights used to direct the eye to featured products or to highlight several products.

Whether the window background itself be screens, or panels, or fabric—whatever you do, do not place high luster merchandise like refrigerators and table appliances in front of a shiny background. Dull finished materials provide the dramatic contrast that emphasizes the sparkle of the products and shows them to best advantage.

Lighting inside the store should enable shoppers to inspect merchandise comfortably. The source of light must not be obvious and the fixtures should appear to be a part of the basic store design. The lamp

Continued on page 48

First Choice OF MEN WHO KNOW

SUNISO REFRIGERATION OILS . . .

Are First Choice of Builders and Operators of Refrigeration-Equipment

More original-equipment manufacturers in the refrigeration and air-conditioning industries use Suniso oil than any other brand.

This fact easily explains why so many outstanding service- and repair-shops use these special oils. The Sun Oil Company has devoted more than fifteen years of research and development to making them the leading lubricants for the refrigeration-industry

Suniso oils are highly resistant to change under operating-conditions. They can be successfully used with methyl chloride, methylene chloride, the freons, ammonia, sulphur dioxide, and carbon dioxide, and are not affected by these refrigerants.

Suniso oils are extremely low in pour-point. They do not form harmful sludge or acids, and have extremely low wax-separating tendencies. Call your local Suniso distributor, or write us direct.

SUN OIL COMPANY • ***Philadelphia 3, Pa.***

Sponsors of the Sunoco News-Voice of the Air—Lowell Thomas

SUN

SUNOCO

INDUSTRIAL PRODUCTS

Robert O. White, manager of the cooler division of Day & Night Mfg. Co., Monrovia, Calif., died Dec. 15 following a brief illness.

A leader in Pacific Coast refrigeration circles, Mr. White was a member of the board of directors of Refrigeration Equipment Manufacturers Association and served on various advisory committees of the War Production Board.

He had been associated with the refrigeration industry since 1927, and had been connected with Day & Night since 1929. He was the designer and patentee of the liquid cooling equipment manufactured by that company.

●

The Perfex Corp. has announced the appointment of **L. B. Miller** and **Allen Butler** as vice presidents in their controls division.

Mr. Miller, formerly manager of the air conditioning and refrigeration

Mr. Miller

Mr. Butler

division of Minneapolis-Honeywell, joined Perfex in 1939 in an executive sales capacity. Mr. Butler, who entered the controls field in 1929 with Time-O-Stat Controls Co., joined Perfex in 1935.

●

Five new appointments have been made in the advertising department of the Westinghouse electric appliance division at Mansfield, Ohio.

J. R. Clemens, assistant manager of appliance advertising, will have the responsibility of product advertising, promotion and sales training.

P. W. Endriss, assistant manager of appliance advertising, will handle full line advertising programs, consumer education and the advertising and promotion of insecticide dispensers.

E. J. Hegarty, manager of sales training, will be responsible for the

Mr. Clemens

Mr. Baird

development, production, and testing of wholesale and retail sales training plans.

K. A. Donelson, operations manager, will be responsible for budgets, administering the Westinghouse cooperative advertising, and will act as office manager of the advertising department.

J. G. Baird, sales promotion manager, will be responsible for full line sales promotional activities for department and furniture stores, and will continue in charge of the Westinghouse store modernization activities, exhibit and convention work, and consumer film programs.

●

Wagner Electric Corp. has announced the following changes in service branch personnel: **Forrest G. Wilson,** formerly a salesman at the Dallas branch, has been appointed manager of the Indianapolis branch; **H. F. Zahn,** formerly manager of the Atlantic branch, has been made manager of the Philadelphia branch; **C. G. Jackson**, formerly manager of the Boston branch, has been moved to Atlanta to manage that branch; **J. K. Miller**, heretofore a New York branch salesman, has taken over management of the Boston branch.

●

C. W. Hudzietz, refrigeration sales representative, has been placed in charge of an eastern outlet for Henry Valve Co. Offices are located at 5618 Grand Central Terminal, New York City. No stocks will be carried at this eastern outlet as adequate stocks are maintained by refrigeration jobbers in that area.

●

Several personnel shifts, including the appointment of **Howard L. Clary** to the position of assistant general sales manager, have been announced by M. G. O'Harra, vice-president and general sales manager of Norge division, Borg-Warner Corp. Mr. Clary, who recently was made manager of sales promotion, was elevated to his new position to co-ordinate all sales department operations, and will direct the activities of the company's field force.

As part of the overall reorganization of the company's merchandising department, **E. J. Kanker,** formerly assistant to O'Harra, has been named to the newly-created post of director of market research, reporting directly to Howard E. Blood, Norge president.

E. R. Bridge, former refrigeration sales manager, has been appoint-

Mr. Clary

Mr. Bridge

ed merchandise manager for the purpose of correlating the activities of all product sales managers. Mr. Bridge has been with Norge since 1934 and is thoroughly acquainted with all products. His successor as manager of domestic refrigeration sales has not been announced.

Advertising, sales promotion, sales

Continued on page 51

Watch Us Grow

2" CONDUIT FOR REFRIG. TUBING FROM REMOTE COMPRESSOR FOR DISPLAY OF EQUIPMENT
COLD WATER FOUNTAIN DEMONSTRATOR IN ACTUAL USE
SALES ROOM

Present location of Campbell's Refrigeration Service.

Good service builds sales . . . and when the two team up properly business volume is bound to grow, no matter what the handicaps. Here's the story of a business that increased ten-fold in four years—and the data on how it was done

By L. H. Houck

"MORE water passes over the wheel than wots the miller of" is just an old way of saying that business volume in any territory has possibilities limited only by initiative, resourcefulness and the ability to produce good service and sell reliable equipment. This was much the situation when John D. Campbell started Campbell's Refrigeration Service, San Luis Obispo, Calif., about the middle of 1940.

The first six months' volume was $1589.29. The water of constant attention to details, plus the oil of enthusiasm, nourished the little business into a volume of $4800 for 1941.

Then the war came, but the business bore up and produced $5942 in 1942. Resourcefulness and ingenuity in turning out service business under adverse conditions, making when he couldn't buy, keeping customers going somehow, nearly doubled the volume, producing a gross take of $10,600. Pursuance of the same methods more than doubled the 1943 figure and produced a volume of $27,942 for 1944.

A business man once told this writer that the war period was the opportunity of a lifetime to achieve fame in business by rendering good service, because so few were doing it.

Mr. Campbell was giving his refrigeration customers what they wanted, for he almost doubled the volume again in 1945 by doing a gross of over $41,000. This during the time when there were supposedly no parts, labor was said to be impossible to obtain, and some dealers even complained that the customers didn't know what they wanted.

At this point Mr. Campbell decided that he had outgrown his present quarters and decided to build a new $22,000 building to house his business, and to design it for greater sales possibilities and service efficiency.

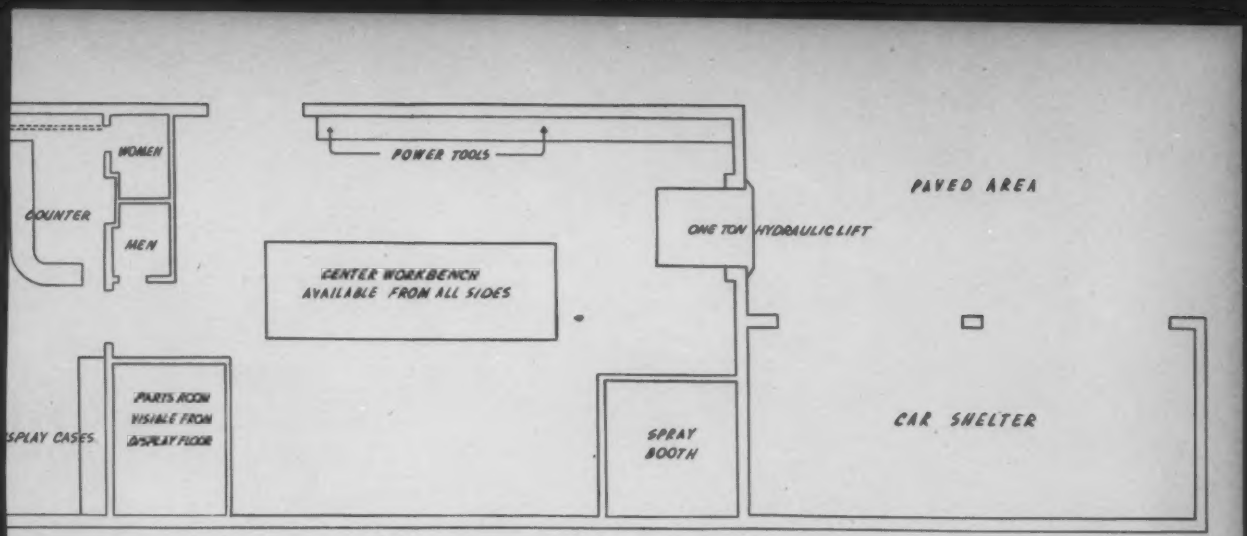
Two points are outstanding in the interview with this successful refrigeration dealer and inspection of his premises:

1. Sales and service can never be separated. Efficiency and ingenuity, based on solid engineering, must dominate in the service department.

2. The better the refrigeration service, the more prospects for new equipment. Service can sell the customer on the organization furnishing the service. This customer remains sold on the basis of past performance, on his memory of present performance, and his anticipation of future service.

Most all of Mr. Campbell's service is commercial. All of his sales are of commercial units; he does not sell domestic equipment.

He tries to instill in his service customers the feeling of security when dealing with Campbell Refrigeration Service, to make the customer feel that if there is any possible way to keep him going, Campbell has both the know-how and the do-somehow.



Sketch of new building to which the firm will move soon. Note "extra touches" in display floor and shop arrangement.

This type of customer, when he has received this service over a long period of time is reluctant to do without it. He is reluctant to deal with a stranger, even if offered a price advantage, because this valuable service, no farther away than his telephone, may be lost to him. The result is that he would much rather buy his commercial equipment from Mr. Campbell. He would much rather have Mr. Campbell's recommendation as to the type and sizes of equipment that he should have.

There's a point in not selling domestic refrigeration, according to Mr. Campbell. There are several appliance dealers in San Luis Obispo who sell domestic units but who do not operate refrigeration service departments. As long as Mr. Campbell's service is as good as it is they will have no desire to operate a service department unless he should go into competition with them by handling domestic refrigeration. This he will not do.

On the other hand, in his new building he is providing space for all local domestic dealers to display a sample of their line. Customers will be allowed to inspect it there, ask questions, and will in turn be referred to the dealer.

This will help forestall any competition in service and provide a needed display for the domestic dealer the organization that will furnish the service to the customer. This service can be a selling point for the domestic dealer, since he can point to the long record of know-how and accomplishment for commercial and domestic units.

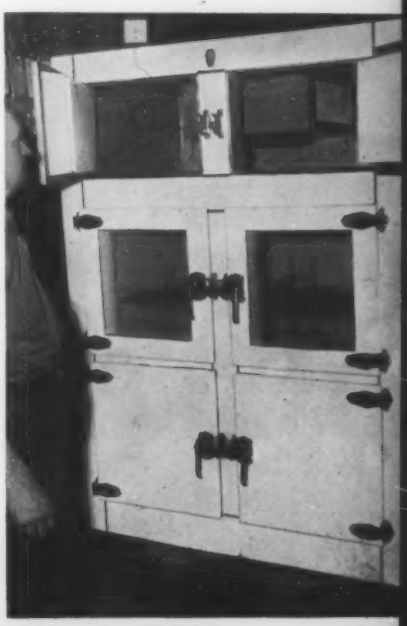
It's still a ring-around-the-rosy game, because the domestic buyer is often a commercial customer.

Another "intangible" that Mr. Campbell tries to sell to the customer is the belief that he can bring any of his refrigeration problems to him and get the right answer without being "sold a bill of goods."

This feature of the business brought in customers who wanted to convert their ice boxes to electric units.

This is a profitable business if the wheat is separated from the chaff. A good ice box can be profitably converted to electric refrigeration and become an asset to the owner and a drawing card for the refrigeration firm that did the work. Inferior ice boxes must never be converted, Mr.

Left: Mr. Campbell believes in knowing everything he can about the equipment he sells.



Right: Converting commercial-size ice refrigerators into usable mechanical units has been good business.

Section of Campbell parts department, showing shelves made of refrigerator shelving, adjustable to any dimension.

Campbell says, and the desire for business must never let the service man take in a bad box because it will always be a black-eye for the business.

A recent job was a fine cabinet originally built for ice. Its capacity was about 25 cu. ft. It had originally cost about $250. Mr. Campbell installed a cold plate in the ice compartment and a cold shelf, gained about 8 cu. ft. since the refrigeration unit did not take up as much space as the ice, installed a remote compressor, and for $250 for electric refrigerating equipment, the merchant had a fine unit.

Shop equipment has been built up to a high standard of efficiency which will be increased in the new building. Mr. Campbell operates on the principle that the service shop must be almost entirely self-contained. It must do all the work, from motors to compressors, so as to control the quality and to make the profit.

Mr. Campbell has a 16-inch turning lathe for making bushings, motor shafts, turning commutators and other work.

Many motor shafts are produced in centerless grinders and consequently do not have centers in the ends of the shafts so they may be placed between centers in the lathe. For this work he has made sockets that fit these shafts. The other end of the sockets fit the Morse tapers in the lathe. These sockets are made in all the common sizes.

He has a bushing press for removing and installing bushings quickly and efficiently. He has a drill press, both acetylene and electric welding equipment, grinder, buffer and a specially designed rack to facilitate the handling of refrigerant cylinders.

Many innovations are being incorporated in the new building. In the shop there will be a carbonator valve and pump repair department to handle soda fountain work. A large work bench will be placed in the center of the new shop, so that the workmen can work around all sides of it without interference.

A paint booth, equipped with pneumatic spray-gun equipment and pneumatic sanding equipment, will be provided, so that cabinets may be refinished in factory style.

The salesroom in front will have space for the display of all types of commercial units and a section where local dealers can display domestic units.

In the concrete floor on the commercial display side there will run a two-inch conduit with suitable outlets at intervals along the floor. Mr. Campbell expects to set up a remote compressor unit in the shop and connect it to any of the units on display that ordinarily use remote units, and display some of these under acual operating conditions. In some cases actual food will be placed in them and customers can see and check food-keeping qualities.

An electric water cooler will be a standard fixture in front. It will be hooked up and in use for the benefit of the public. A card will give the make, the size and the price plus, operating costs and other sales promotional material.

A hydraulic lift or elevator will be installed at the loading and unloading

Continued on page 72

This gas tank rack, made by Mr. Campbell, makes the handling of refrigerant cylinders much easier.

REFRIGERATION INDUSTRY *News*

HIGGINS GIVES APPLIANCE DIVISION TO CRARY, BUSENLENER & BRAMBLETT; OPERATIONS REMAIN UNCHANGED

Messrs. Bramblett, Crary, and Busenlener, new owners of the former appliance division of Higgins Industries, Inc.

★ ★ ★

presented the appliance division of Higgins Industries, Inc., to its present operating heads J. O. Crary, L. V. Busenlener, and W. H. Bramblett. Industries Sales Corp. has been organized and is operating without interruption as distributor of the lines of commercial and domestic products formerly handled by the Higgins appliance division.

Mr. Crary, who served as division manager for Higgins, is president of the new company. Mr. Busenlener, formerly manager of the commercial and air conditioning department is vice-president, and Mr. Bramblett, who headed the domestic appliance department, is secretary-treasurer.

Offices and display rooms at 521 City Park Ave. will be maintained for the present, and Industries Sales Corp. will continue with the same retail dealers franchised by the Higgins company in Louisiana, south-central Mississippi, southern Alabama, and western Florida.

Prior to joining Higgins Industries Inc., Mr. Crary managed the commercial and air conditioning department of Frigidaire's New Orleans branch.

Mr. Bramblett also served Frigidaire in various executive posts, and Mr. Busenlener is a former Frigidaire sales engineer.

BASTIAN-BLESSING ANNOUNCES NEW CHICAGO OUTLET

Talbert-Thomas Co. has been named exclusive distributor of the Bastian-Blessing line of soda fountain-luncheonette equipment in the Chicago trading area. L. W. Byczek is fountain sales manager of the company.

Talbert-Thomas Co. also distributes air conditioning and commercial refrigeration units, and refrigerated fixtures, including frozen food cabinets, dairy and vegetable cases, walk-in coolers and reach-in refrigerators.

FRIGIDAIRE BUILDS K. C. WAREHOUSE

Ground has been broken for the construction of a new Frigidaire district office and warehouse in North Kansas City which will provide approximately 45,000 sq. ft. of floor space and cost approximately $200,000 and should be completed and ready for operation by spring.

The new building will house the Kansas City district offices, sales, display and meeting rooms, and a complete parts department, commercial shop, and warehouse facilities for the Kansas City district. In addition, a zone shop for sealed unit repair also will be located there.

Andrew J. Higgins has

COOLIDGE ELECTED CRMA PRESIDENT

J. H. Coolidge, president of Sherer-Gillett Co., has been elected president of the Commercial Refrigerator Manufacturers' Association for this year.

Other officers chosen by the association members are: J. D. Harris, The Warren Co., vice president; A. J. Johnson, Puffer-Hubbard Mfg. Co., treasurer; George E. Friedrich, Ed Friedrich Sales Corp., and J. J. Leonard, Seeger-Sunbeam Corp.

CANADIANS MEET MARCH 17-18

Annual educational conference of the Interprovincial Chapter of Refrigeration Service Engineers Society will be held March 17 and 18 in the King Edward Hotel, Toronto, Ont. A full program of technical discussions has been scheduled. Persons in both the U. S. and Canada planning to attend the event are advised to make hotel reservations well in advance.

NATIONAL PRICE POLICY SET BY WESTINGHOUSE

A national price will be suggested on all home appliances made by the Westinghouse electric appliance division, distributor executives meeting at Mansfield, Ohio were told at the first sales convention held by the Westinghouse division in four years.

T. J. Newcomb, sales manager, said that the new standard price will be effective for the 48 states and the District of Columbia, replacing the former four price zone plan in effect during the prewar years.

Approved price on the 1946 B-7 household refrigerator is $179.95." This has been adopted as the national price and will be nationally advertised as such.

"Setting up a standard national price will minimize the possibility of inflationary prices and gives the consumer a yardstick to determine fair sales prices," Mr. Newcomb stated.

SERVEL EXECUTIVES LEND A HAND

Vice presidents Harry Newcomb and W. E. Baker load the first mass-produced Servel Supermetic on the truck held by W. L. Aulsebrook, electric division sales manager, as George S. Jones, Jr., another vice president, looks on.

A. H. WITT ORGANIZES OWN COIL COMPANY

A. H. Witt has resigned as sales manager of Drayer-Hanson, Inc., Los Angeles refrigeration and air conditioning manufacturer, to engage in business for himself under the firm name of Witt Coils. The new organization will handle a complete line of commercial refrigeration coils and water coolers and will sell through jobbers only.

A one-time branch manager for Lipman and operator of his own distributorship, Mr. Witt before joining Drayor-Hanson managed the Los Angeles operation of Peerless of America. The new organization has offices at 767 E. Pico Blvd., Los Angeles.

FROZEN SEA FOOD IS NEW MAXSON PLAN

Plans to enter the frozen sea food field, with a freezing plant on the New England coast, have been announced by Maxson Food Systems, a division of W. L. Maxson Corp. of New York.

In the nine last months of 1945 this organization served to the Naval Air Transport Service and others some 500,000 meals that were prepared in complete units of meat and two vegetables, partially precooked, assembled on a treated cardboard plate for quick-freezing, and then given the final cooking in a specially designed oven. Mr. Maxson estimates that in 1946 American housewives will have available more than 25 million of these meals.

"As with our meat meals," Mr. Maxson explains, "the fish will be pre-cooked at the New England plant. It will be quick-frozen and packaged in single meals for the home or in multiple numbers for institutions. It can be sold from the usual frozen food case in the store and then thawed and finally cooked in the oven in its package. Thus the odor is kept from spreading."

Production will begin as soon as the special machinery required for mass preparation of sea food is manufactured.

DEALER VIEWS AIRED IN HOTPOINT SURVEY

A leery attitude toward trade-ins, a feeling that the home freezer market has been somewhat overrated, and an intention to handle a limited number of lines but to display them in complete kitchen or work-center arrangements —these summarize the expressions of refrigerator dealer opinion gathered by Edison General Electric Appliance Co., Inc., (Hotpoint) in a survey sent to 12,000 such merchants throughout the country.

Returns from more than 20% of the dealers queried showed that almost 90% of those answering will install complete operating kitchens as an integral part of their merchandising program. This, in the opinion of Floyd M. Slasor, manager of Hotpoint refrigerator sales, constitutes the greatest single new development in post-war refrigerator selling.

Almost 30% of the dealers cooperating in the survey think that trade-ins will figure in less than 10% of refrigeration transactions in the immediate post-war period, compared with the 30% figure involved in pre-war sales. Many dealers appear to feel Mr. Slasor points out, that a straight "no trade-in" policy is the best merchandising bet at the present time, inasmuch as many existing boxes are worn beyond the point of worthwhile reconditioning.

A total of 1,284 dealers (53% of those answering the survey), however, said they would be set up to handle reconditioning work, while 625 said they would not, and 413 declined to commit themselves.

On the matter of home freezers, the majority of dealers seemed to think that sales possibilities of the regular household refrigerators with low temperature compartments for frozen food storage were far greater than for the separate home freezer units, at least insofar as city dwellers are concerned.

CEILING PRICE SET ON COPELAND REACH-INS

Ceiling prices to consumers of $440 and $490 have been set for the two models of a 16.5-cu. ft. reach-in commercial refrigerator manufactured by Copeland Refrigeration Corp. The higher price is for the unit equipped with an ice-cube coil instead of a plain coil. Distributors will pay $220 and $245 for the two units; dealers will pay $264 and $298.

DISTRIBUTORS VIEW PRODUCTS IN NEW CROSLEY LINE

A preview of some of the products to be produced in 1946 by Crosley Corp. was given recently to about 150 Crosley distributors and their key-men by a group of Crosley executives at a one-day conference at the Stevens Hotel, Chicago.

It was pointed out that no announcement of the forthcoming products would be made to the public at this time, as several of them are still in the development stage.

DESIGN SERVICE ESTABLISHED FOR RUBBER PRODUCTS

A new design engineering service has been established by the H. O. Canfield Co., Bridgeport, Conn., manufacturer of rubber and synthetic rubber products. Available upon request to companies engaged in the refrigeration and air conditioning fields as well as to any other firms having a use for this type of product, the service will include studies to determine both material qualities and production processes best suited for any rubber or rubber compound product.

FIRM NAME CHANGED

As of Jan. 1, 1946, La Crosse Cooler Co. became the new name of the La Crosse (Wis.) Novelty Box Mfg. Co. Change in name, the company declares, more accurately describes its activity in the commercial refrigeration field, and does not involve any change in management, personnel, or company policy.

FEDDERS MFG. CO. CHANGES NAME, MOVES OFFICES

Fedders Mfg. Co., Inc. has now become the Fedders-Quigan Corp., and main executive offices of the organization have been moved from Buffalo to 5801 Grand Ave., Maspeth, Long Island, according to a recent pronouncement by company officials.

Fedders has leased three buildings of Frank J. Quigan, Inc. in Maspeth, and will purchase another building there now leased by the Quigan company, all of which will give the revamped organization a total of 90,000 sq. ft. of manufacturing space in the Long Island community in which to expand its present operations. Fedders eventually will take over all of the Quigan facilities, it is said.

Mr. Quigan, who with his associates now owns 75% of the Fedders stock, said the shifting of the main office to Maspeth would mean no change in the set-up at Buffalo.

NEMA ELECTS WRIGHT SECTION CHAIRMAN

F. A. Wright, assistant general sales manager of Cutler-Hammer, Inc., Milwaukee, maker of electrical equipment, has been elected chairman of the industrial control section of National Electrical Manufacturers Association.

BORDEN ISSUES FIRST SUPPLY CATALOG

Product listings, engineering data, and ordering information all are included in the first parts and supplies catalog compiled by A. E. Borden Co., Boston refrigeration and air conditioning supplies jobber.

The 122-page loose-leaf book contains descriptions of the equipment manufactured by the 42 companies whose products are distributed by the Borden organization.

Plans have been made to have this catalog syndicated to members of the REWA "at a cost considerably below any similar endeavor on their part."

SCHNACKE, INC. BUYS OUT SERVEL'S HEAVY-DUTY COMPRESSOR UNIT BUSINESS

Schnacke, Inc., a newly created Evansville, Ind. firm, has purchased from Servel Inc. the designs, models, patterns and right to manufacture and sell the 10 to 50-ton electric refrigeration and air conditioning compressor units formerly manufactured by Servel.

This was announced jointly by Fred C. Schnacke, president of the new firm, and George S. Jones, Jr., vice-president in charge of sales for Servel, who added that Servel will concentrate its production on ⅛ to 5 H.P. condensing units in the refrigeration field.

W. J. Aulsebrook, sales manager for the electric refrigeration division of Servel, said that war priorities caused Servel to discontinue operations in 1944 in the field of manufacture sold to Schnacke.

Officers in the new firm are Fred C. Schnacke, president; Walter H. Schnacke, vice-president and also president and general manager of Schnacke Mfg. Corp.; and L. H. Quigley, secretary-treasurer.

The manufacturing will be done by Schnacke Mfg. Corp., which has specialized in the manufacturing of precision products for many years. Sales will be to distributors and air conditioning and refrigeration contractors who will install the complete units on the job. Schnacke, Inc. will handle sales for the compressor units in addition to the sales of all other products of the Schnacke Mfg. Corp.

The units will be sold under the name of Schnacke, without any connection whatsoever with Servel.

MIDWEST DISTRIBUTOR NAMED BY HOWE

Arctic Engineering Corp., 2815 Montrose Ave., Chicago, has been appointed exclusive distributor for Howe Ice Machine Co., in Illinois, Indiana, Wisconsin and Michigan.

William W. Morgan who has 26 years experience in the commercial and industrial refrigeration field, will head the organization. Clarence J. Freestone, who will be chief engineer, was with Howe Ice Machine Co. for 17 years.

The new company also will handle Gebhardt circulator units for the food industry, and conduct a complete contracting and engineering service in the refrigeration and air conditioning field.

SALEM NAMES SEVEN NEW DISTRIBUTORS

Salem Engineering Co. Salem, Ohio, has appointed several new distributors of its "Automatic" locker plants.

Following are the organizations and the territories they will serve:

Colorado, Wyoming, Utah, and western Nebraska—Sterns-Rogers Mfg. Co., Denver, Colo.; New England—D'Elia Electric Co., Inc., Bridgeport, Conn.; Virginia and North and South Carolina—Colonial Frozen Foods, New York City; Michigan—James & Roach Co., Detroit.

Oklahoma, Arkansas, and Louisiana—Carroll's Locker Supply Co., Chickasha, Okla.; Texas and New Mexico—T. E Nicklas, Weslaco, Tex.; California—Mr. Ken Engel, San Francisco.

LIFE ASRE MEMBERSHIP VOTED DR. EWELL

A life membership certificate in the A.S.R.E. has been given Dr. Arthur W. Ewell, consultant to the Westinghouse lamp division, Bloomfield, N. J., for "distinguished service" to the society. Dr. Ewell, a retired physics professor at Worcester (Mass.) Polytechnic Institute, has been conducting research on the Sterilamp ultraviolet lamp whose invisible rays kill bacteria. He is one of the nation's authorities on the effect of ozone in food preservation.

BROMANN NOW PRODUCING WALK-IN COOLERS ONLY

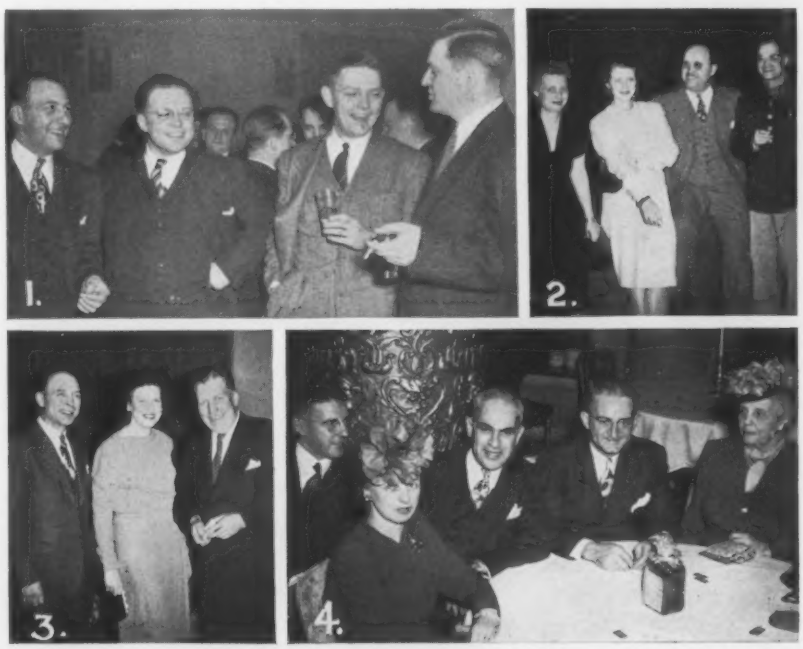
Inability to obtain necessary materials is currently limiting production of Albert H. Bromann, Jr., Chicago manufacturer of commercial refrigeration equipment, to walk-in coolers and doors.

In addition to its standard line of cooling rooms, the company also is producing less expensive rooms intended for basement or back room installation.

Production has not yet started on Bromann's direct draw beer dispenser and companion beverage cooler.

PACKAGING SHOW TO OPEN APR. 2

Latest "wrinkles" in the packaging of quick-frozen foods for processing, for storage, and for long-distance transport, will be on display at the 1946 Packaging Exposition scheduled to open April 2 for a four-day run in Atlantic City's public auditorium.



Part of the crowd of 1602 people which overflowed the main ballroom of the Drake Hotel at the ninth annual Christmas Party sponsored by Herman Goldberg, Chicago manufacturer's agent, is pictured above. 1—L. J. Krause, Minneapolis-Honeywell Regulator Co.; B. D. Rinehart, Mayflower Products, Inc.; O. L. Sellers, International Harvester Co.; Al Lennox, Weatherhead Co. 2—J. G. Praetz and Major Freeman of Liquid Carbonic Corp. chat with their wives. 3—G. A. Larson (left), Milwaukee, Wis. jobber, poses with J. F. McKenna of Detroit Lubricator Co. and Mrs. McKenna. 4—Host Herman Goldberg joins some of his Ansul Chemical Co. friends. Left to right are R. C. Hood, Mrs. L. C. McKesson, Herman, F. J. Hood, and Mrs. F. G. Hood.

NEW ASRE OFFICERS FOR 1946

Left to right: Clifford F. Holske, Vilter Mfg. Co., New York City, vice president; Prof. Burgess H. Jennings, Northwestern Technological Institute, Evanston, Ill., treasurer; Roland H. Money, Reynolds Metals Co., Louisville, Ky., vice president; Charles S. Leopold, consulting engineer, Philadelphia, president.

NEW KELVINATOR PLANT PLANNED FOR ARGENTINA

Formation of a company which will construct a new plant at Buenos Aires for the fabrication of Kelvinator refrigeration products, ranges, and other household appliances for distribution throughout the Argentine Republic, has been announced by Nash-Kelvinator Corp.

The new company, capitalized for two million pesos, was organized by a group of leading Argentine business men who were enfranchised by the Kelvinator Corp., and will be known as Darkel, S. A.

R. J. Hermitte, general sales manager of the new enterprise, signed the franchise. He was accompanied to the United States by the new Argentine company's chief engineer, T. L. Lagos, who studied production practices in Kelvinator's Michigan plants.

PHILCO CHANGES NAME OF SALES SUBSIDIARY

The board of directors of Philco Corp. has changed the name of Philco Radio & Television Corp., a wholly-owned subsidiary which handles the national distribution of Philco products in the United States, to Philco Products Inc.

"The greatly expanded scope of Philco operations, which now include household refrigerators, freezers, air conditioners, and radar equipment, as well as radio receivers and television, makes it advisable to give a broader name to our sales company," John Ballantyne, Philco president, said in explaining the board's action.

SCHAEFER NAMES 61 NEW DISTRIBUTORS

Schaefer, Inc., Minneapolis manufacturer of low temperature cabinet equipment since 1929, has announced appointment of 61 new distributors.

The firm is now in production of its three low temperature cabinet groups, according to Harold L. Schaefer, president. During the war, Schaefer produced special low temperature equipment for the armed services.

A list of the new distributors follows:

Lockie & Glenn, Cincinatti; Lone Star Wholesalers, Dallas, Tex.; Shield Co., Fort Worth, Tex.; Charles R. Bowman Co., Grand Rapids, Mich.; Jules Alexandre, Inc., Harrisburg, Pa.; Southwest Furniture, Ltd., Houston, Tex.

Refrigeration & Electric Supply Co., Little Rock, Ark.; Foster Distributing Co., Louisville, Ky.; Wayne Spinks Co., Memphis and Nashville, Tenn.; Clark Supply Co., Milwaukee; General Electric Supply Corp., New Orleans; T. S. Ponthan Co., San Antonio, Tex.

B. F. Austin & Son, Abilene, Tex.; Doherty-Stirling, Inc., Baton Rouge, La.; W. A. Case Son Mfg. Co., Buffalo, N. Y.; H. E. Humphreys, Concord, N. H.; Vernon C. Frederick, Houston, Tex.; Passman Equipment Co., Monroe, La.; A. F. Briggs Co., Portland, Me.; Cable-Wiedemer, Inc., Rochester, N. Y.; Scranton Supply & Machinery Co., Inc., Scranton, Pa.

Charles S. Martin Distributing Co., Inc., Atlanta; Legum Distributing Co., Baltimore; Gross Distributors, New York; M. L. Foster Co., Oklahoma City; Thomas Blackett Co., Detroit; C. H. Malcolm Co., Seattle; Electric Appliances, Inc., Indianapolis; El Paso Hotel Supply Co., El Paso, Tex.

MICHIGAN DEALER IN NEW LOCATION

John Dok and Nick Dryer, operating as the Fremont Electrical Service, Fremont, Mich., have moved into a newly redecorated and remodelled building at 31 West Main St. In the new location the firm will do domestic, industrial and commercial refrigeration service, and sell Philco household refrigerators.

COVERS HAWAII

Bruce & Co. has signed a franchise with American Central Mfg. Corp., Connersville, Ind., to distribute the company's all-steel kitchen sinks and cabinets in the Territory of Hawaii, according to C. Fred Hastings, general sales manager.

LIDRO PURCHASES CLEVELAND CABINET

Lidro Enterprises, Inc. has announced its purchase of all holdings of Cleveland Refrigerator Co., including a large one-floor building at 6600 Sidway Ave. where full operations will be continued.

For the past 25 years Cleveland Refrigerator Co. has been engaged in the production of refrigerated showcases, butcher coolers, and similar items of commercial equipment.

Lidro Enterprises is headed by A. J. Litt and William Drosd, who also operate National Fixtures Mfg. Co., Cleveland manufacturer of stainless steel restaurant fixtures.

WASHINGTON, D. C. OUTLET NAMED BY BASTIAN-BLESSING

Washington Tobacco Co., distributor of refrigeration equipment and store fixtures in the District of Columbia since 1932, has been appointed by Bastian-Blessing Co. of Chicago to handle its line of fountain-luncheonette and ice cream making equipment.

FRIGIDAIRE PLANS

Frigidaire Division, General Motors Corp., is planning alterations, new machinery, and installations costing $176,000 for its plant at Moraine City, Ohio, near Dayton.

DOOR-TO-DOOR HOME FREEZER SALES PLANNED BY NEW YORK COMPANY

Application of door-to-door appliance merchandising techniques to the sale of frozen food storage units for the home and a frozen food supply service to keep these units brim-full keynotes the promotion program outlined by United Frozen Food Distributors Inc., New York City.

United plans to franchise 100 distributors in as many cities to retail (and, in some cases, wholesale) its brand of home storage cabinets and establish home delivery service of its complete line of frozen foods. Distributors will not operate retail stores. Instead they will rely solely on house-to-house canvassing.

Chief requirement for a distributorship is proven merchandising ability. Some distributors will merely use the well-developed home delivery routes on which they already are selling non-related products. Most of the seven midwest distributors so far signed up are fuel oil companies or appliance firms. Other likely prospects include refrigerated warehouses and locker plants.

Unique feature of the distributors' franchises is provision for their participation on advisory committees to the board of directors on such matters as new equipment design, food research, and granting of new franchises.

How soon United's distributors get started depends on the company finding sources of frozen food to be packed under its own label, production of home storage cabinets, procurement of refrigerated trucks, and the availability of public cold warehousing space for distributors not having these facilities.

There's G-E equipment for every refrigeration need

HERE'S the reason why engineers in every field of refrigeration turn to General Electric for equipment . . .

They *know* they can depend on the compact, economical G-E Condensing Unit . . . heart of all G-E refrigeration. This unit provides a rate of heat transfer equal to that of units of much larger size. And the power consumption is remarkably low.

For specifications or other information on G-E equipment, get in touch with us. We'll be glad to help. *General Electric Company, Air Conditioning Dept., Section* 6972, *Bloomfield, N. J.*

THE G-E LINE INCLUDES:

- ★ Condensing Units
- ★ Evaporative Condensers and Coolers
- ★ Heating and Cooling Coils
- ★ Heat Transfer Assemblies
- ★ Storage Cabinets
- ★ Water Coolers
- ★ Cube Ice Makers
- ★ Conditioned Air Cooling Units

GENERAL ELECTRIC

AIR CONDITIONING . . .
COMMERCIAL AND INDUSTRIAL REFRIGERATION

DISPLAYING TO SELL . . .

Continued from page 37

itself should be shielded to avoid glare. A general rule for appliances is to use 35 to 50 foot-candles for overall illumination and double that amount in showcases and in special display arrangements.

Here again spotlights should be used to highlight merchandise or to attract attention to special displays.

In the display areas color may be used to set the mode for a particular kind of product. For example, cool greens and blues for refrigerators—warm glowing reds for electric ranges, gay colors for gift appliances.

In approaching the problem of laying out the store space and allocating products to various floor areas, the first principle is to try to keep all high products, such as refrigerators, against the wall. The practice, much too common, of placing refrigerators back-to-back in the general floor area or grouping them around columns not only cuts off the view of most of the other merchandise, but also gives the appliance department something of a cemetery look.

Another interior display principle is to have all refrigerators connected so lights operate when the doors are open, and to have all ranges connected to 110-volt lines so surface and oven lights operate. It is only necessary to have a demonstration range connected to a 220-volt line.

One of the debated questions is the use of platforms under major appliances. A platform gives added importance to the product, but it should be used only with products that cannot be moved. Where a platform is used, it should be no more than 4" high or 28" deep—just big enough to hold the appliance. The customer does not want to be put on display, so she will not stand up on the platform for a demonstration.

Store Layout Suggestions

On approaching the problem of store layout, the following steps are suggested:

1. **Draw an accurate scaled plan of the floor of your store—probably about ¼" to the foot. Indicate all columns, door and window locations, stairs, etc.**
2. **Make a list of all products that you want to display. Make up this list by brand names and the number of items of each kind.**
3. **Make cut-out paper units for each appliance in the same scale as your floor plan. Make enough of these to cover off the full list of appliances you plan to display.**
4. **Make paper cut-outs to represent kitchens and laundries and other special display or space taking elements.**
5. **Try to fit these pieces into the available floor space. If it appears that you cannot do an adequate display job on a large number of lines—then it is best to do a good job on fewer lines. Keep all products of a type together and arrange them for step-up selling.**
6. **After you have succeeded in achieving a good arrangement of the product—then determine your display treatment.**
7. **At this point check your lighting to be sure that you will have not only good general illumination, but supplementary spotlights located where they can highlight the merchandise. Plan both your display and your lighting so they are flexible.**
8. **After establishing the light intensity for the store, then make up your color selection.**
9. **Plan the store wiring so that adequate facilities are available to do a good display and demonstration job. At the same time provide for plumbing and drain facilities.**

DAVISON'S

Refrigeration Grade

Silica Gel

. . . the drying agent with a background of success in moisture elimination

Over long years, Davison's Refrigeration Grade Silica Gel has proved to many thousands of service engineers that it gives greatest value because it does more than ordinary drying agents. Because it was developed especially for the dehydration of refrigerants . . . because Davison engineers, working closely with refrigeration engineers, helped solve the problem of moisture, *"Davison's"* soon *became the industry's* leading drying agent . . . a position it held because *it played a great part in customer satisfaction* and reduction of waste time during the war years when the service engineer was so hard pressed.

Because Davison's Refrigeration Grade Silica Gel meets, and on many points, excels the requirements of the complete drying agent, IT COMPLIES WITH THE REQUIREMENTS OF JOINT ARMY-NAVY SPECIFICATION JAN-D-169-GRADE A TYPE II FOR DESICCANTS (ACTIVATED)

SPECIFY DAVISON'S REFRIGERATION GRADE SILICA GEL FROM YOUR JOBBER.

He stocks Davison's Refrigeration Grade Silica Gel..in factory-charged dehydrators and for refilling.

THE DAVISON CHEMICAL CORPORATION

Progress through Chemistry

BALTIMORE-3, MD.

Canadian exclusive sales agents for DAVISON'S SILICA GEL:
CANADIAN INDUSTRIES LIMITED, General Chemicals Division

INVENTORY FIGURES . . .

Continued from page 33

re-valuation of inventory as a separate listing on the records. It may also affect the costing or pricing of your goods and service, if the increase or decrease is substantial.

8. The only way to get an accurate inventory figure is to take a physical count of the items in stock. Adjust your book figures to agree with the actual count when you take inventory. The Bureau of Internal Revenue may question your book value on inventory unless you take a physical count "at reasonable intervals".

If your books are kept in accordance with good accounting practice, and you take a physical count periodically, the book figure on ending inventory is acceptable on your tax return, providing you record the actual cost of the merchandise and materials purchased during the taxable year, credit the goods sold or used on service work, and include inventory at the beginning of the year at actual cost.

9. A stock control system helps keep inventory in the groove. Lack of

"Has Your Unit Been out of Commission Long?"

stock control causes many business men to go wrong on inventory valuation. Others confuse a stock control system with a perpetual inventory, or use the information on this record to compile the inventory count. A stock control system polices the movement of stock from receipt to customer. It minimizes loss and provides valuable data on stock-turn waste, breakage, and other inventory losses, maximum and minimum quantities on hand to aid in making intelligent purchases, minimizes "outs", prevents a tie-up of excessive capital in stock on hand, etc. It is a cost control record, not an inventory.

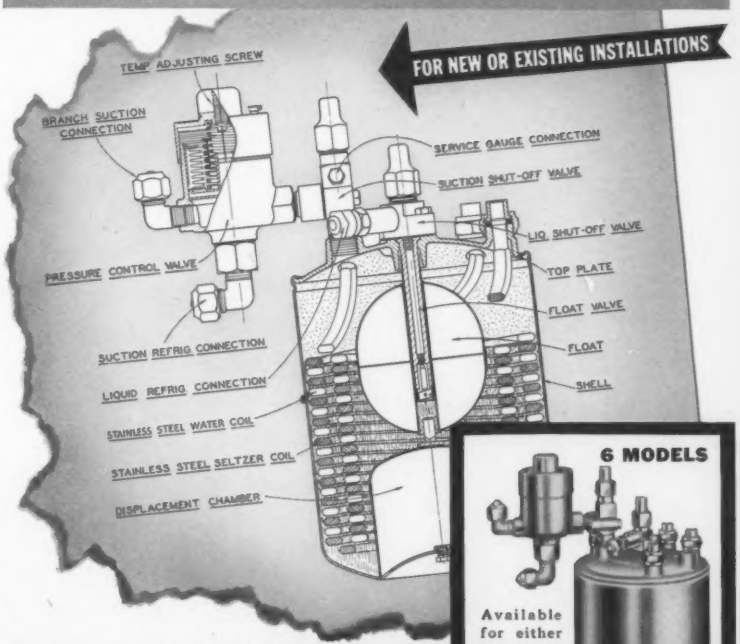
10. Separate goods unusable or unsalable because of defects of any kind, and list them at actual value. By reducing the cost of such items to real value, you get the benefit of a tax deduction and take a loss when realized. Otherwise, your inventory on the profit-and-loss statement and balance sheet is inflated, and so is net profit and net worth.

Retail merchandise items should be valued at bona fide selling prices less cost of disposition. Materials for service and installations should be valued at a reasonable basis considering their condition and usability, but never less than scrap value.

The Internal Revenue Code states that depreciation does not apply to inventories, but inventories may depreciate or grow obsolete just the same. You cannot take this depreciation deduction the same as on fixed assets, but you handle it through inventory valuation.

To equalize losses on damage, waste, etc., throughout the year, some

Perfect 40° control
WITH TEMPRITE
SODA FOUNTAIN and BEVERAGE COOLERS



6 MODELS

Available for either light, medium or heavy duty dispensing applications.

● When you install a Temprite soda fountain or beverage cooler you can be sure of a constant 40 deg. temperature with Temprite's patented instantaneous cooling principle and constant pressure control valve. The beverage is cooled as used and *only* at the rate required. Can handle either 1, 2 or 3 carbonated or non-carbonated beverages in each cooler. Write for descriptive literature today.

TEMPRITE PRODUCTS CORP.
Originators of Instantaneous Liquid Cooling Devices
41 PIQUETTE AVENUE • • • DETROIT, MICHIGAN

business men scan their experience figures, determine the average yearly expense, then charge it off monthly. However, as such, it is not a permissible deduction on the income tax return, because the Treasury Department wants the actual loss as shown through the inventory records.

Of the various methods used to value inventory, cost or market, whichever is lower, is probably most frequently used. Market value means replacement value. Some accountants debate the fairness of this method, contending that it is inconsistent, that it writes down inventories when the market value is below cost and does not write them up when the market is above cost. However, conservative accounting demands that profits be not anticipated, that a loss has actually occurred if the inventory can be replaced at a lower value, and the current period should stand the loss.

Some accountants are always trying to find the elixir to eternal profit, but "there ain't no such animal." Recording the figures in a different way, as is done under the different depreciation and inventory methods, gets the same result in the long run, so use the simplest method suitable to your business and recognized as good accounting practice.

Cost or market, whichever is lower, is one of the methods prescribed by the Bureau of Internal Revenue, and has merit. During a period of rising prices, cost is the inventory valuation; in a period of decreasing prices, market or current bid price for the merchandise and materials prevailing at the date of the inventory. Cost is the invoice price, less trade or other discounts, plus incoming transportation and other charges incurred in acquiring the goods.

Under this method, inventories are valued at cost to defer profits until sales, at market prices, to record a loss when recognized. If there is a loss, it will eventually out, so get rid of it as soon as possible. To carry over an inventory valuation higher than actual value means that you pay more tax for the current year because your profits are higher on paper, that you decrease your margin for the following year, reducing the net for that period.

In many cases, the net and tax for both years may amount to about the same thing either way, unless the tax rate changes; but your books do not reflect what really happened unless you show it. This makes it very hard to get a good background perspective for comparative analysis from period to period, an important tool of cost control.

No method of recording can bypass economic conditions and their influence on operating results. A business man can only minimize their negative effect with intelligent action based upon a dependable accounting system.

If you use a system that obscures economic movement from the standpoint of your records, you are at a disadvantage because you will not know why you earned or lost money

HERE'S a lead for U. H. manufacturers of refrigeration equipment who are seeking representation in England.

Mr. F. H. Meyers, a director of Refrigeration & Electrical Products, Ltd., London, is now in this country, in an effort to secure export rights for England for U. S.-made compressors, controls and other refrigeration products.

Companies interested may get in touch with Mr. Meyers c/o Hotel Waldorf-Astoria, New York City.

Actual THERMOBANK Installation in Locker Storage Plant of 500 Locker Capacity. The contracting firm was the Refrigeration Corporation of America, 241 W. 64th Street, New York, N. Y.

THERMOBANK by KRAMER

With the THERMOBANK a zero degree system is just as automatic as a 40 degree system—in fact more so.

It never needs to be defrosted because it defrosts itself automatically without the use of brine sprays, water sprays or electric heaters. Write for Bulletin TV 345 RI

KRAMER TRENTON CO., Trenton, New Jersey

due to external conditions, and your analysis of recordings will be faulty. By entering any change in inventory value on your records as a separate item, you can always refer to such entries to determine how your business reacted to economic gyrations and compare results with other periods. Or you can gather facts from such records that will help you meet some future management problem.

Remember that accounting, unlike mathematics, is not an exact science. Probably 90% of the transactions are computable with mathematical accuracy, such as mortgage interest, office expense and salaries; but certain transactions, such as depreciation, estimated tax expense for a forthcoming period, and inventory, are not computable to the penny. Value is partly ascertained through judgment, and good judgment depends upon a knowledge of fundamentals.

In this article, we have discussed the main factors touching inventory valuation to help you handle this important problem accurately, because it is of prime importance in costing and analyzing operations, in fixing prices on re-sale items and making estimates on service, and in the preparation of your tax return.

BASED on length of service and base rates of pay, bonuses varying from five to 50 times as great as previous bonus payments were presented employes of Baker Ice Machine Co., Omaha, Neb. at Christmas time.

Every salaried employe and shop workman from top executive down through the ranks shared in this bonus in accordance with an announced company policy of compensating employes for work well done and sharing the company's prosperity with its employes.

YORK CORP. EARNINGS

For the fiscal year ended Sept. 30, 1945, York Corp., reports $38,365,127 sales qualified for profit. This volume represents a 12½% increase over the preceding year, and is the highest volume of sales in York's 61 year history. Uncompleted orders were $16,017,371 at the year and compared to $27,139,922 a year earlier. After provision for income and excess profits taxes net earnings were $949,718 or $1.02 per share compared to $729,838 in the preceding year.

ABOUT PEOPLE . . .

Continued from page 39

training, publicity and public relations have been consolidated under **C. H. MacMahon,** director of advertising and public relations. MacMahon has been successively a salesman, regional manager, product manager, Eastern salesmanager and advertising manager with the Norge organization since 1934.

Ellis Redden, who recently joined Norge as manager of sales training, will take over Mr. Clary's former duties in sales promotion.

●

H. D. Graves, formerly midwest regional manager for Temprite Products Corp., has been appointed wholesale district representative of Brunswick-Balke-Collender Co. for distribution of Blue-Flash refrigeration products. He will headquarter in Chicago.

●

Frank X. Scheidel has been appointed head of the New York office of Sunroc Refrigeration Co. Mr.

Service Engineers Should Know . . .

How to prevent refrigerant loss and lubrication troubles when open type machines are sent to storage or are shut down for extended periods.

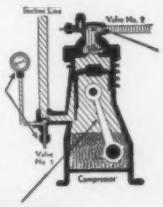
This is what may happen when open type systems remain idle:

A: Exposure to high temperatures may create crankcase pressures high enough to weaken the shaft seal; result — refrigerant leaks out.

B: Exposure to low temperatures may condense refrigerant vapors in the crank-case — oil is diluted to cause foaming and oil pumping when machine is started again.

Here is the procedure to prevent the conditions under A and B.

1 Attach compound gauge to the plug port of Valve #1, then turn valve stem all the way in to cut off suction line.



2 Pump crankcase pressure down until a constant pressure of 2 or 3 lbs. per square inch is maintained; stop compressor.

3 Turn stem of Valve #2 all way in cutting off line to condenser. Remove compound gauge, bleeding remaining pressure to zero. Replace port plug securely.

4 Be sure to disconnect electrical current if the machine is not to be moved.

Manufacturers of "Virginia" Refrigerants and Distributors for "Freon"-11—"Freon"-12—"Freon"-21—"Freon"-22—"Freon"-113.

VIRGINIA Smelting Co.

WEST NORFOLK, VIRGINIA

76 BEAVER ST., NEW YORK 6 :: 131 STATE ST., BOSTON 4

Scheidel has been engaged in the refrigeration business since 1928, and since 1936 has been merchandising water coolers.

●

Robert C. Hood, who received his discharge in November from the U. S. Coast Guard in which he had the rating of lieutenant and who saw service in the Pacific on a combat cargo ship, was elected secretary of Ansul Chemical Co. at the firm's annual meeting of the board of directors. Mr. Hood was associated with the firm before he entered the service in 1943.

Other officers re-elected were H. V. Higley, president, F. J. Hood, vice president, J. F. Asell, treasurer, and Mrs. F. G. Hood, mother of Robert C. and F. J. Hood, chairman of the board.

●

Kenneth Randleman has replaced R. L. Williams as head of the refrigeration and air conditioning department of Mideke Supply Co., Oklahoma City jobber of refrigeration and air conditioning equipment, according to Joseph M. Mideke, vice president.

●

Orland H. Yoxsimer has been appointed manager of the household refrigerator cabinet engineering division of Westinghouse Electric Corp.

Mr. Yoxsimer will be responsible for the coordination and development work on domestic refrigerator cabinets at the company's East Springfield, Mass., and Mansfield, Ohio plants. He will be stationed at Mansfield, where he has been section engineer of cabinet engineering since 1938.

●

Harris Pruitt has returned to the staff of Salem Engineering Co., Salem, Ohio, after serving as a Navy procurement officer since late in 1942. Although he will handle all products made by Salem, Mr. Pruitt will specialize in commercial freezing equipment.

He first joined the Salem staff early in 1941 after having operated his own engineering and equipment business.

●

Election of **George R. Prout** and **L. R. Boulware** as vice presidents of General Electric Co. has been announced by Charles E. Wilson, president.

Mr. Prout

With the establishment of the air conditioning department as one of the six G-E operating departments last April, Mr. Prout, who has been with the company since 1920, was named general manager.

Mr. Boulware, who is now responsible for operation of G-E affiliates as well as serving as a consultant on marketing and merchandising, joined G-E last January, after having been operations vice chairman of the War Production Board when it was headed by Mr. Wilson. Prior to his WPB service he was vice president and general manager of both Carrier Corp. and Celotex Corp.

●

E. A. (Terry) Terhune, formerly national sales manager of Servel, Inc.'s electric refrigeration division, has been named general maanger of General Vending Corp., a concern specializing in automatic vending machines.

●

Arley L. Baker has been appointed assistant sales manager of the Alco Valve Co. Formerly application engineer for the company, he will continue to devote most of his time to field work.

●

James C. Barnaby, consulting engineer of Worthington Pump and Machinery Corp., has been transferred to the general engineering staff at the Harrison works as assistant director of research and development.

●

Harry H. Erickson has been named service manager of Appliance Distributors, Inc., Chicago distributor of Admiral appliances. Mr. Erickson formerly was field service representative of the Chicago branch of Frigidaire and field engineer for Stewart-Warner Corp.

●

David B. Smith, director of the Philco research division since 1941, has been appointed vice president in charge of engineering of Philco Corp.

Mr. Smith joined Philco in 1934, serving first as a patent engineer on radio, television and other applications of electronics.

●

Norman C. Macdonald, eastern regional sales manager for Crosley Corp. for the past five years, has been promoted to vice president and general manager of the New York branch of Crosley Distributing Corp. He will be succeeded as eastern regional sales manager by **Sherman A. Bishop,** who has been serving as merchandise manager in the company's eastern district for the past 15 months.

Mr. Bishop

●

Paul Peckar, formerly assistant senior division engineer of the Reconstruction Finance Corp., has joined the engineering staff of Tenney Engineering, Inc., Newark, N. J. manufacturer of automatic temperature humidity and pressure control equipment.

●

Roy N. Fowler, formerly southern district manager for General Electric Co., has been appointed general manager of electrical appliances for all 31 Sterchi Bros. furniture stores throughout the South.

Honeywell provides the answer with the Polartron *System* of Automatic Defrosting Control. — Applicable to all "above freezing" fixtures the Polartron System provides for temperature "Cut-out" and Pressure "Cut-in" operation thus assuring positive defrosting at the end of each "on" cycle. Take advantage of the full capacity built into your refrigeration equipment — use the Polartron System. See your jobber for further details. Minneapolis-Honeywell Regulator Company 2909 Fourth Avenue South, Minneapolis 8, Minnesota. Branches and distributing offices in all principal cities.

MINNEAPOLIS
Honeywell
CONTROL SYSTEMS

The Polartron System of
FROST-FREE REFRIGERATION

Better be SAFE with a CESCO Mask

• Don't take chances with hazardous refrigeration fumes. There's a way to be safe—use a CESCO Healthguard Mask.

No. 605 FUME KIT gives 3-way protection at lower cost

CESCO's Healthguard Fume Kit (No. 605) offers *triple protection* to refrigeration servicemen. Quick-change filter cartridges assure safety against ammonia, methyl-chloride and sulphur-dioxide fumes . . . *all in one convenient carrying case.*

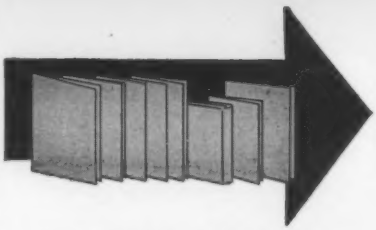
The soft molded rubber face-piece of the fume mask, and the adjustable headgear assure a gastight, comfortable fit for every wearer. Large safety glass lenses give perfect visibility.

The CESCO Healthguard Kit provides *economical* protection because it is *moderately* priced.

Write for CESCO'S *No. 605 Safety Bulletin for complete information*

CHICAGO EYE SHIELD CO.
2340 Warren Boulevard
Chicago 12, Illinois

CESCO
FOR SAFETY



Useful Literature

The publications listed below are available to readers without charge. Simply list in the coupon at the bottom of this page the numbers of the items you wish to receive, and sent it to THE REFRIGERATION INDUSTRY, 812 Huron Road, Cleveland 15, Ohio. Your requests will then be forwarded directly to the companies concerned.

251—Frozen Food Packaging Materials . . . A catalog listing a complete line of these materials, and a bulletin describing the "Zer-O-Kit" combination of packaging materials and illustrating the use of each. Available from Yorkville Paper Co.

252—Refrigeration and Air Conditioning Equipment . . . A bulletin (WP-1099-B48) issued by Worthington Pump & Machinery Corp. covering descriptive information on its self-contained air conditioners, air conditioning units, refrigeration units, and vertical and horizontal large-capacity machines.

253—Service Instrument . . . A four-page illustrated bulletin listing the features and explaining the functions of the "Airserco" refrigeration unit starter and analyzer. Available from Aircraft Service Co.

254—Valves and Fittings . . . Brand new catalog (No. 45-R) covering the latest developments in Kerotest air conditioning and refrigeration valves, fittings, and accessories. Available from Kerotest Mfg. Co.

255—V-Belts . . . A catalog (No. 44) pointing the way to increased replacement service profits through the medium of Dayton fractional-horsepower V-belts. Available from Dayton Rubber Mfg. Co.

256—Charging Lines . . . A brochure issued by Aeroquip Corp. listing the available sizes of its refrigeration service charging lines, complete with detachable and reusable fittings, and providing illustrated assembly instructions.

257—Hermetic Terminals . . . Two bulletins listing the applications and giving diagrammed specifications of "Fusite" hermetic terminals and the new Fusite "Hermetican," and suggesting how they may best be used to facilitate production of electrical equipment. Separate price list also is available from Cincinnati Electric Products Co.

258—Spark Plug Bushings . . . Bulletin No. 237-A issued by Aircraft Screw Products Co., Inc. describes in detail, with photographs, diagrams and specifications, the features and applications of "Heli-Coil" spark plug bushings, and shows three ways they may be inserted by means of power tools.

259—Transformers . . . A bulletin outlining construction and operating theory of constant voltage transformers and suggesting practical applications for their use. Catalog section lists 31 standard types. Available from Sola Electric Co.

260—Drill Attachments . . . A 30-page catalog (No. 45) showing for the first time the complete line of "Terry" angle and flexible drill attachments including replacement parts, and offering maintenance suggestions as well as ordering instructions. Available from George A. Terry Co.

261—Temperature Controls . . . Condensed catalog and price sheet (No. 4591-C) covering various types of thermostats and pressure and vacuum switches and controls and including tabulated electrical ratings of these units. Available from United Electric Controls Co.

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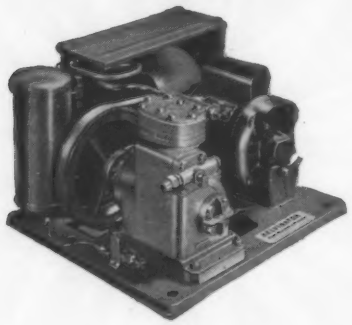

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Edited by
Warren W. Farr

Temporary Repairs

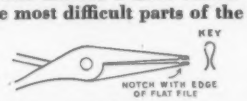
Albert Brownly of Mendon, Massachusetts, writes in to tell us how he kept a refrigerator in service. His letter is as follows:

Recently I was called to service an 'open unit Frigidaire' with a burnt out motor. As it would require some time to obtain parts and rebuild, and due to sickness where the patient required cold drinks and special foods kept on ice, it placed me in a fix.

"After some thought I hit on a scheme to keep the unit in operation and explained it to the man, and his reply was that he didn't care what I did just so long as I gave him refrigeration. The job was operated by a 1/6 H.P. repulsion induction motor, and in my shop I had several ¼ H.P. capacitor motors, so I put the refrigerator up on blocks, placed the motor on a platform attached to the blocks under the original unit base, and used the original belts and pulley to give the compressor the right speed.

"I placed an electric fan behind the refrigerator to cool the condenser, and wired the fan and motor in series with the thermostat. I tied a cretonne curtain around lower part of the base to keep the fan from blowing dirt into the room. This emergency hookup was in operation for three weeks lacking one day, and the unit did a perfect job. Family was well pleased and are my boosters."

IN CHANGING switches on small Delco motors I have found one of the most difficult parts of the job



to be the replacing of the spring cotter key.

By filing notches in the jaws of my long nose pliers, I have made this task very simple. A two-pound piece of 2" bar steel works out very nicely for holding the switch in place while replacing the cotter key.

Joe Gerson, Jackson, Tenn.

IN making an installation it is sometimes desirable to pump a vacuum on the system with the installed compressor. In this case, run a ¼ in. copper tube from the discharge, shut off valve into a quart whiskey or milk bottle. In case some oil is pumped over due to oil scrubbing, it can be measured and the correct amount of new clean oil can be put in the compressor pump.

E. A. Fry, Grand Rapids, Mich.

Some More Selling Points

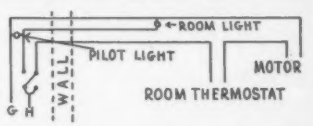
Awhile back, in the thought that a "refresher" course might be useful, we gave you some of the more important selling points on the advantages of refrigeration in commercial establishments. Now, let's look at the advantages you can point out to your customers and prospective customers in farming communities:

1. Increased profits. Electric refrigeration permits holding perishables for favorable market prices. Fruits, vegetables, poultry and meats can be preserved by quick freezing, which retains the original quality texture, and nutritive value of farm products for long periods of time.

Refrigeration retards bacterial growth in milk, fruit, and meat. It is especially valuable in the processing and favorable marketing of dairy and poultry products. It provides ice in sufficient quantity for most farm uses, and helps change old farms into modern business establishments.

2. Reduced work. Refrigeration eliminates the harvesting, hauling and storing of ice. It automatically provides safe temperatures for stor-

RECENTLY, in installing a walk-in cooler blower, I found that in wiring the blower it was quite satisfactory to use a three-way switch, hooking the motor to one



side and the room light to the other side.

With this arrangement, the user, when he goes into the cooler, will turn on the light before opening the door, and the blower fan will cut off. When the room light is turned off as he leaves the cooler, the blower fan will operate again.

As a precaution, a pilot light was located above the door, wired with the room light, to warn when the fan is turned off. In this way there is little chance for the unit to be out of operation for any length of time.

Ray Hahn, West Chicago, Ill.

FIVE DOLLARS REWARD

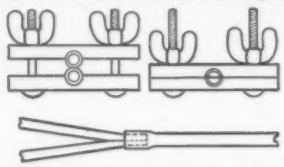
WILL BE PAID by THE REFRIGERATION INDUSTRY for any information on installation or servicing procedures and shortcuts accepted for publication in HERE'S HOW, The Service Man's Department.

Send your suggestions on shop equipment and methods, tools, or other ideas to HERE'S HOW EDITOR, c/o THE REFRIGERATION INDUSTRY, 812 Huron Rd., Cleveland 15, Ohio.

ing food. It eliminates the use of a well for cooling, and the accompanying work involved in carrying food.

3. Better health. Refrigeration prevents food spoilage, controls bacterial growth, and reduces the possibility of poison through the use of contaminated food.

SHORTAGE of fittings has caused substitutes to be necessary sometimes. Here is one for a tee. Two lines of ⅜" will fit into the swedge joint of a ½" line. Clean and ream the two ends of the ⅜" tubing. Place the two ends flush and place



into the ½" slot of the flare block, and tighten, making the two ends form a half circle.

Re-clean, post and tin the two ends of the ⅜" tubing. Swedge the ½" tube and place the two ⅜" inch tubes into the ½" tube and sweat.

This also works in other sizes; two ¼" tubes fit into a ⅜" tubing. But in the case of two ½" tubes a reduction of ¾" to ⅝" has to be used. This works well on making up spiders for evaporators.

T.Sgt. Ralph P. Babcock
c/o P. M., New York

4. More economical. Refrigeration saves money for the farmer by preventing spoilage and waste. It permits quantity buying, favorable marketing, and makes farm operations more efficient. In addition to this it reduces the expense from accidental injury to persons, animals, or property, and increases the value of the farm investment.

Safety for the Operator

Cold storage rooms are becoming very numerous with the increased popularity of frozen foods. Previous issues of The Refrigeration Industry have reported a number of installations of automatic low temperature rooms. All of these rooms should incorporate a safety alarm device to be used in the event an individual is locked in the cold room. A number of these safety devices are available. Some employ flasher lights, horns, and bells. These items are adequate when a plant is large enough to have some personnel always in attendance outside the do cold room. However, a new device has been announced which is adaptable to the small one-man plant.

This device employs a telephone circuit to ring an alarm at central headquarters of A. D. T., police department, fire department, or some other continuously attended alarm location.

Another precaution that should be observed is that in repairing a door lock, the entire lock should be removed rather than the inside section of the lock only, since doing the latter permits an individual to enter the cooler, but not to leave it. Removing the entire lock eliminates this hazard, as the cooler door can then be opened from either side and there is therefore no danger of a person getting inside the room and not being able to get out again.

Perhaps you noticed in the newspapers recently an account of an eastern cold storage plant operator who froze to death when he was trapped inside a room from which the inside lock had been removed. Such tragedies as this make us all realize that it doesn't pay to relax our safety measures, even for a little while. The hardest blows usually hit you when your guard is down.

SERVICE men who make up ¼ in. copper tubing for their gauge sets find that after they have used them a few times connecting and disconnecting and bending them to fit out-of-the-way gauge ports, they crack or kink, becoming useless. To overcome this annoyance I make up lengths of ¼" tubing about 18" long over which I slip an ordinary screen door spring, which should be of such diameter as to be a snug fit. (This is a standard size, obtainable at most hardware stores.) Put the ¼" nuts on each end and flare.

You will find that tubing made this way will stand months of bending and twisting without kinking.

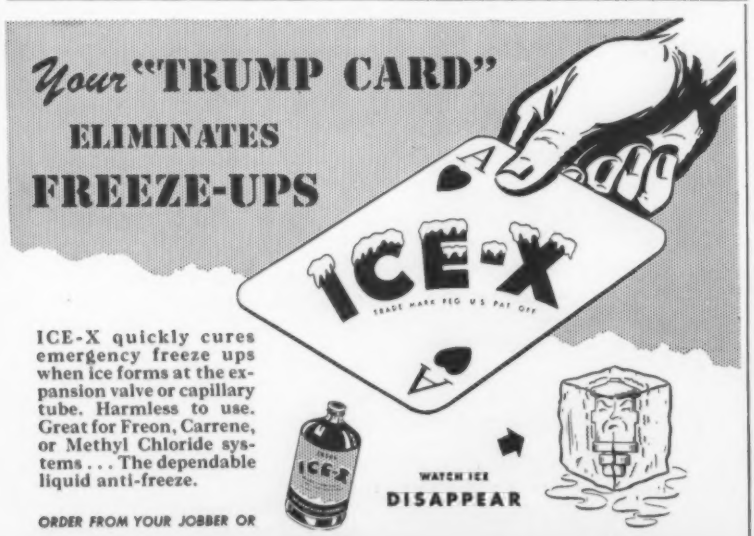
A. J. Partee, Burlington, Wis.

IN SERVICE work, the service engineer may be called upon to put a Norge rollator to work that is not pumping due to the lack of oil in the rollator. I have been told by more than one serviceman that their method is to take the rollator from the base and pour the oil in.

My service pointer is to close the suction valve after attaching the manifold gauges to suction and discharge valves. Connect a discharge hose to the center connection of the manifold and close the discharge valve. Then open the manifold valve and the rollator will pump down on a vacuum and oil may be pulled in the center of the manifold and into the rollator by the suction valve.

This pointer saves much time and is based on the fact that the rollator will pump down to a vacuum at atmospheric pressure but not against the regular head pressure. I have used this method many times, and if the trouble is low oil, it will work.

John H. Hunter, Wilmington, Del.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CAPILLARY TUBES . . .

Continued from page 31

was the refrigerant used and the correct charge for the system was 1¾ oz. A frost-back occurred if 2 oz. was used, and the evaporator was starved if only 1½ oz. was used. This condition is not too good. It would be better to plan the evaporator to use at least from 8 oz. to 1 lb. of refrigerant. With a total charge of 1¾ oz., a yearly leakage of ½ oz. would decrease the effectiveness of the system considerably in six months; with a 16 oz. charge, the same yearly leakage would cause no appreciable ill effect for several years.

The correct method for charging a capillary tube system is to charge in refrigerant a little at a time until a flood-back occurs, and then remove just enough refrigerant to eliminate the flood-back.

The refrigerant should be dry, or moisture freeze-up in the capillary tube will occur. Even at back pressures slightly above freezing, a freeze-up may occur in the capillary tube, as the static pressure near the outlet end of the tube may be such that sub-freezing temperatures obtain in the tube. The static pressure in the evaporator may be such as to give an above-freezing temperature as the velocity pressure in the capillary tube shows up in a static pressure regain in the evaporator.

A heat exchanger effect may be obtained by wrapping the capillary tube around the suction line, or by soldering the capillary tube to the suction line. The use of the heat exchanger is decidedly advisable and may improve the operation of the system considerably.

A decided "don't" for capillary tube systems is: **Don't use a liquid receiver where the liquid take-off from the receiver is such that it does not take the liquid out of the extreme bottom of the receiver.** If liquid remains in the receiver after the shut-down period starts, it will evaporate in the receiver, pass through the capillary tube into the evaporator and condense in the evaporator. This removes heat from the receiver and passes it to the

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evaporator, causing a quick warm-up and inefficient operation. All capillary tube systems to some degree tend to transfer some heat from the condenser to the evaporator after the compressor stops. If the system is properly engineered, this heat transfer is very small.

The capillary tube system is generally a one temperature system in which the temperature of a flooded evaporator is reduced during the running period and in which the suction pressure and discharge pressure equalize after the compressor stops. A number of variations or modifications may be made, however, to accomplish other specific purposes.

Load on the motor and compressor when the system starts up from a warm condition is very great, since the suction pressure is high, so that the compressor pumps gas at a faster rate, and the discharge pressure becomes very high in order to force the refrigerant through the capillary tube and also to enable the refrigerant to condense fast enough. The motor must be such as to take care of the extreme condition during high temperature weather so that at low temperatures in the evaporator the capacity of the unit may be quite low so that the motor idles along at half- or even at one-quarter load, while in starting from a warm condition it may operate for a time at 125 to 150% of rated capacity. Figure 3 shows a valving arrangement which will eliminate this difficulty.

In Figure 3, the valve in the suction line marked "X" is a valve which throttles the suction line to limit the suction pressure at the compressor inlet to that which will normally occur. The compressor is belted for low temperature work, so that the motor will deliver full power at normal operating temperatures. Suppose the application is a freezer operating normally with suction pressures of 5" vacuum to 5 lbs. pressure. The valve could then be set to throttle into the compressor at pressures of 10 psi down to 0 psi. At the latter setting, the compressor could be belted to put full load on the motor when the suction pressure is 0 psi and the ambient temperatures are at the highest point.

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"TO a Young Man in Search of His Future," a self-evaluation handbook for prospective salesmen has been prepared by Kelvinator division, Nash-Kelvinator Corp.

In outline, the booklet contains a discussion of the general nature of the sales profession, a "profile" of the successful salesman, a terse examination of the incentives, the future, the security and other elements of selling, and—as a highlight—a carefully prepared test by which the individual may measure his aptitude for selling. The booklet concludes with specific commentary on the opportunities available to salesmen in the home appliance field.

To prevent freezing in water cooler or similar applications, the hook-up of Figure 4 can be used. The suction line pressure reducing valve is set to limit the minimum pressure in the evaporator to a point at which freezing will not occur, such as 34 to 40 psi with F-12. The compressor will reduce the suction pressure to whatever cut-out pressure is desired when the pressure control stops the machine. Whenever the pressure in the gas receiver and suction line rises to the cut-in point, the machine cuts in again, while a constant predetermined temperature is maintained in the evaporator. One of the new sealed

units is in effect a combination motor, compressor, and gas receiver.

Figure 5 shows a multiple temperature job using two loaded valves to obtain the different evaporating temperatures.

Figure 5 Explained

Evaporator No. 1 is to maintain a refrigerated space at about 40-45° F. at high humidity, so should operate at pressures, with F-12, of 32-40 psi. Evaporator No. 2 is to maintain temperatures of 10-20° in a refrigerated space, so pressures ranging from 8-16 psi should be suitable. Evaporator No. 3 is to maintain a space at temperatures from -30 to -10° so pressure of 10″ to 3 psi should be suitable. This set of conditions can be maintained by having pressure drop valve No. 1 between Evaporators 1 and 2 set to cause a constant drop in pressure of 24 psi. The valve in the line between Evaporators 2 and 3 should be set to maintain a constant pressure drop of 13 psi. The pressure control should be set for 10″ to 3 psi. At cut-in, the pressure in Evaporator 1 should be 40 psi and in Evaporator 2 the pressure should be 40—24, or 16 psi. At cut-off, the pressure in Evaporator 3 is 10″, and in Evaporator 2 it is 13 psi higher, or 8 psi, while in Evaporator 1 it is 8 psi + 24, or 32 psi. A system such as this should have a comparatively large accumulator, so that it can accommodate a fluctuation in level due to variations in liquid and gas ratios in the various evaporators.

Capillary Tube Summary

Summarizing, we can say that capillary tube systems:

1. Tend to low cost for high production domestic refrigerators.

2. Are critical in refrigerant charge.

3. Are suitable for series circuits only—no parallel capillary tubes.

4. Should have capillary tubes selected for capacity of system, refrigerant used, and operating temperatures.

5. Operate with either pressure or temperature controls.

6. In general, should use accumulators.

7. Should always be provided with filters ahead of the capillary tubes.

8. Should not contain liquid receivers, or if used, should drain all liquid direct into liquid line.

SODA FOUNTAINS . . .

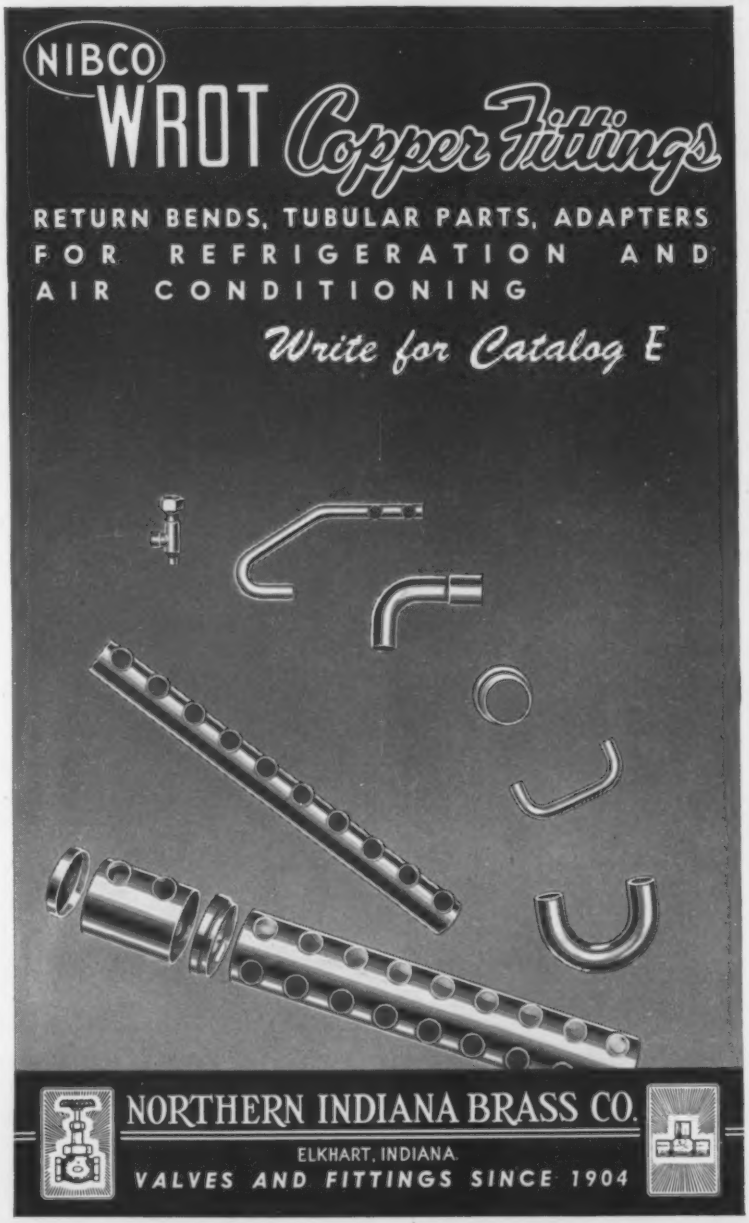
Continued from page 35

valve will keep the ice cream evaporator full of refrigerant leaving the rest of the charge for the syrup and water cooling sections. If the system is short of refrigerant on the early "Lifetime" model, little or no ice will be obtained on the front wall water bath evaporator due to the refrigerant being completely evaporated in the syrup rail and rear wall water bath evaporator, even with the TEV adjustment wide open.

Excessive ice formation in the syrup rail and on the rear water bath evaporator with little or no ice on the front evaporator indicates either (1) shortage of refrigerant charge, (2) the expansion valve not open ("raise") wide enough, (3) or the TRV-20 not set cold enough.

The TEV controls the amount of refrigerant admitted to the evaporator coils while the TRV controls the amount of ice formed in the water cooling section.

Refrigerant shortage on the DX system will likewise show up first in



the water cooling section. If short on refrigerant, the ice formation in the water bath will thin out at the mid-section of the evaporator and toward the bottom, the amount of ice formation depending on how short the system is on refrigerant. On extreme shortage no ice will form on this evaporator while the syrup rail may freeze solid. A plugged expansion valve, expansion valve not open wide enough, or a TRV set too warm may cause the same result.

* * *

Replacement "Liquid" DX Evaporators (Direct Expansion Type)

"Liquid" DX type evaporators are available to replace Frigidaire low side float type evaporators (boilers) for use on F-12, SO2 or methyl chloride installations. The DX evaporator eliminates the low side float and float troubles from sticking, flooding, improper calibration and ball leaks. There is no possibility of oil logging with the DX evaporator.

DX direct expansion evaporators have a higher rate of heat transfer, a higher efficiency and operate at higher back pressure than the low side float type evaporators. This substantially decreases running time and operating costs for the fountain condensing unit.

DX ice cream section evaporators are manufactured at the Chicago factory. Evaporators are silver soldered throughout. They are interchangeable with Frigidaire evaporators. The header plate fits with same tank boiler plate and ring. The No. 12572 DX evaporator is used for both right and left hand "boiler" replacements. It is necessary to replace or shorten the liquid and suction lines to the ice cream section on old fountains to effect connections to the DX evaporator heat exchanger.

Figures 8 and 9 show the ice cream section installation arrangement of the heat exchanger, thermostatic expansion valve etc., for both right and left hand connections. The heat exchanger is designed to fit inside the regular ice cream section refrigeration opening. The expansion valves are factory set for 10° superheat.

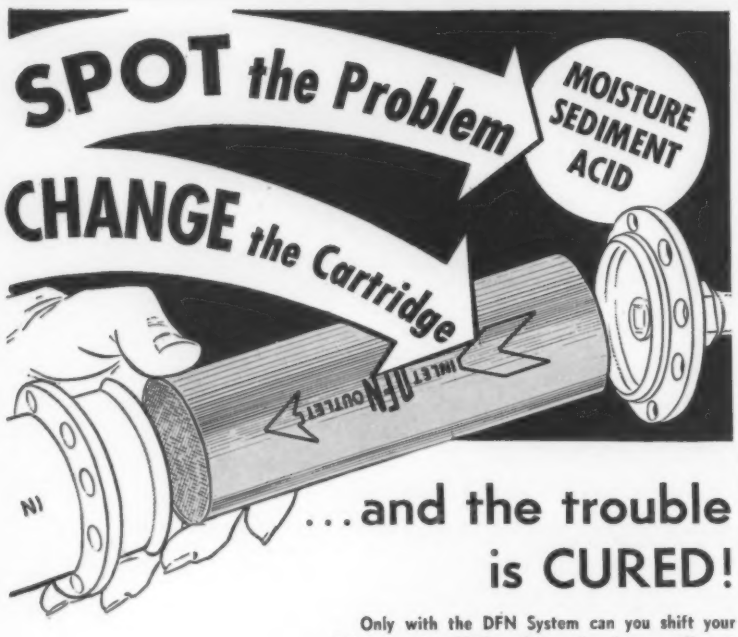
The heat exchanger is supplied with the ¼" connection crimped while the suction connection is supplied as shown with a flare elbow and ½" flare nut dead headed. The installation man must provide a ¼" flare union and three ¼" nuts to make the liquid line connection.

Replacement of 19X, 20X, 39X, or 40X Evaporators. Where the DX evaporator No. 12572 is used to replace an ice cream section 39X or 40X Frigidaire evaporator, (short boiler, long tube type) or similar models, it will be necessary to install a high supporting foot to support the rear end of the DX evaporators. After

REACH-IN frozen food display cabinets are the answer to volume sales in the frozen poultry and processed eggs field, according to some merchandising authorities.

Thus far, most frozen food cabinets have served adequately to store the produce but have done virtually nothing toward merchandising it.

A reach-in display case, it is felt, would make it possible to build large bulk displays—real selling displays—without endangering the quality of the product by exposing it to low temperature. Also, use of such cases would make it possible to distribute poultry products through more outlets—small groceries and delicatessens, for example—in addition to regular meat markets.



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removal of the old evaporator, tack solder the small reinforcing plate No. 45481 on the inside bottom of the tank, and then solder the higher supporting foot No. 45480 on top of the plate at approximately 13½" from the front of the tank to meet the bottom support plate on the DX evaporator. The small copper reinforcing plate is 2½"x5½", while the supporting foot is 8 1/16" high. Install the DX evaporator using new gaskets on all boiler plates and new cap screws where necessary. Coat the gaskets with white lead before installing.

Fill the thermostatic expansion valve and temperature control bulb wells with petrolatum or vaseline. Petrolatum is supplied in a tube with a long spout to facilitate getting the material down to the bottom of the bulb well. Before filling the wells with petrolatum, it is suggested that the whole tube be immersed in about 110° (warm) water for about five minutes. This will soften the petrolatum sufficiently to facilitate complete filling of the wells and proper bottoming of the expansion valve and switch bulbs. Fill the well about half full wtih petrolatum, insert the bulb pushing it all the way to the bottom and then finish filling the well. Plug the wells with split rubber stoppers. *Be sure bulbs are pushed all the way in to bottom of both bulb wells.*

●

Replacement of 21X, 23X, 41X and 43X Evaporators. Where the direct expansion evaporator is being used to replace a 41X, or 43X Frigidaire evaporator (long boiler, short tubes) or the earlier models of this type, the low supporting foot for the rear end of the evaporator will fit the new evaporator without change.

●

Water Cooling Compartment Replacements (Attemperating Chamber). A short type "LIQUID" DX evaporator No. 12668 is used for all water cooling compartment (attemperating chamber) boiler replacements. All boilers used on Liquid Carbonic fountain water cooling compartments were the short boiler, long tube type, 19X, 20X, 39X or 40X. No heat exchanger or check valve is required but a suction control valve must be used to control the ice formation. This may be a TRV20, TMV-65, or old style 2 temp. valve (all Frigidaire) or a No. 235 suction pressure regulating valve (Automatic Products).

●

Adjustments. The TEVF207 valve is factory set for 10° superheat and for ice cream sections with a heat exchanger should not be changed. When the No. 12668 DX evaporator replaces a water bath (attemperating chamber) evaporator, no heat exchanger is used and consequently it may be necessary to set the expansion valve superheat a little higher to prevent frosting back outside the evaporator. This can be done by turning the valve adjusting stem "clockwise" (passing less refrigerant) about ⅛ turn or until the frost line stops at the header plate.

●

Temperature Control Setting. The recommended differential on the ice cream section temperature control is 7° on DX evaporator applications.

Refrigerant Charge. The refrigerant charge for DX evaporators is approximately 4 lbs. of F-12 and about ⅓ lb. of refrigerant oil.

Best tool in your kit....

Note large, legible scale and "Recalibrator" for keeping thermometer accurate. Also note illustration with back open showing method of coiling up capillary tubing.

The MARSH "Serviceman"

The "Serviceman" does what a pocket thermometer can't do. The remote reading feature permits tests under actual working conditions—with the refrigerator door closed and the indicator outside showing just what is going on at the point of measurement.

A generous length of capillary tubing is provided which coils handily into the back of the case, as illustrated, when the instrument is not in use. The Serviceman is a sturdy thermometer throughout, built to Marsh standards of precision and accuracy. The Marsh "Recalibrator" provides a convenient and certain means of keeping it accurate.

Here is the all-purpose thermometer for all domestic or commercial servicing. Volume production makes it possible to sell the Serviceman at the remarkably low dealer's net price of $6.25 F.O.B. Chicago.

JAS. P. MARSH CORPORATION, 2060 Southport Avenue, Chicago 14, Illinois
Export Department: 155 East 44th Street, New York 17, N. Y.

MARSH *Refrigeration Instruments*

CUSTOM BUILDING . . .

Continued from page 29

are now slaughtered and dressed in the prime season when there will be the least shrinkage loss, and a constant forward stock kept at 34° in the holding room. Those on order for other than local markets move into the sharp freezer, maintained at zero, where they are given 36 to 48 hours refrigeration before going into trucks or railroad cars. The sharp freezer has 4-inch insulated walls and can be reached from either inside or outside the holding room.

Used compressors and other equipment was pressed into service for this job, which was rushed for the 1944 season. The holding room is equipped with a 2 h.p. Bedell water-cooled compressor connected to ½" tubing over galvanized plates in the pre-cooling room. Refrigeration in the sharp freezer is supplied by a 1 h.p. water-cooled Bedell unit utilizing the same type of job-fabricated coils and plates.

"We're proud of the way this installation has functioned," Mr. Brown said. "Not only does it save feeding ten tons of expensive grain per day for 30 to 45 days after the prime season, but the turkey meat is better quality, does not shrink, and commands top prices throughout. One installation of this type invariably sells another; we're now estimating a different setup for the same purpose at another poultry farm."

Another example of custom touches in selling and installing is a refrigerated open vegetable counter which Mr. Brown designed for a grocery store. This consisted of a 9x5 foot California redwood case lined with galvanized metal, with a tapering top enclosure similar to a meat case—but entirely open at the front. It is lined with 3 inches of Palco wool, and with the colorful redwood polished out, is a handsome addition to the store. Vegetables and fruit displayed in this case are refrigerated by means of two coils of ½" copper tubing, one each at the top and bottom, and laced to provide a platform for the contents. Wound in series, the top coil is completely exposed to the air over the produce on display, and through condensation, drips a steady amount of ice-cold water on the produce—similar to the spray methods used in many markets. The bottom coil in combination keeps the total temperature through the display unit at 50° F. or lower, a "blanket of cold air" which proved very successful. The grocer using the cabinet has sent in other prospects anxious to get rid of produce spoilage problems.

The air conditioning system of Mandel Bros. Chicago department store is back in operation again after a wartime shutdown during which its 300-ton compressor unit was doing heavy duty in a defense plant.

A pioneer in department store air conditioning when it installed its first cooling equipment 11 years ago, Mandel Bros. had since made extensive use of this proven merchandising air. But in the fall of 1942 the War Production Board asked for air conditioning units for use in the war effort, and Mandel's was among the first to respond to the call. So the store's 300-ton compressor unit was sent off to serve in an artificial rubber plant somewhere in the south.

Finally came V-J Day, however, and with it the announcement that "It's Cool Again at Mandel's." The old unit was still on the job in the war plant, but a new 800-ton air conditioning unit had been installed in its place.

BOTH OF THESE TOOLS ... are compact, light weight (up to 3 lbs. lighter than other tools of similar capacity) ... amply powered for fast cutting of hot rolled steel up to recommended capacity, softer materials in proportion ... cool running, comfortable to the hand ... elimination of customary handle gives operator complete control of tool in all positions. Ask your distributor today for a demonstration.

SKILSAW, INC.
5033-43 Elston Ave., Chicago 30, Ill. • *Factory Branches in All Principal Cities*

DISTRIBUTES EBCO

Gordon A. Mueller, Inc. of Long Island City, has been appointed exclusive distributor in metropolitan New York for Ebco water coolers.

Let WHITE-RODGERS fill ALL your REFRIGERATION CONTROL NEEDS

Regardless of how well planned and constructed your equipment may be, it must have proper control to assure efficient, satisfactory performance. Selection of just the correct controls for your needs is simplified by the *completeness* of the White-Rodgers line. Specify these accurate, dependable controls on all installations involving temperature or pressure. Predominantly used by manufacturers of refrigeration and air-conditioning equipment. Write for catalog and installation data.

WHITE-RODGERS ELECTRIC CO.

ST. LOUIS 6, MISSOURI

Controls for Refrigeration • Heating • Air Conditioning

STRAINERS and FILTERS

FOR EVERY NEED

Mueller Brass Co. Strainers and Filters are manufactured throughout with non-ferrous metal, and have a polished natural metal finish. All tubular types are fabricated from brass or copper pipe with forged brass outlets soldered in place. Other types are made from brass forgings.

All Filters and Strainers are designed to insure efficient passage for the maximum refrigerant volume that is generally used in any particular size refrigerant line. The range is exceptionally complete — one for every specific purpose.

Write for literature on A-13661 Line Filter — inexpensive and with a maximum efficiency.

Order through your jobber.

MUELLER BRASS CO.

PORT HURON, MICHIGAN

BROOKS ORGANIZES OWN ROTAMETER FIRM

Brooks Rotameter Co., specializing in rotameter flow rate measuring and controlling instruments, has been organized at Lansdale, Pa. by Stephen A. Brooks and seven associates.

The company's instruments will be designed, it is stated, to meet the difficult services and corrosive atmospheres encountered in the process industries.

Mr. Brooks, a graduate chemical engineer, for the past six years has been vice president in charge of sales and advertising for Fischer & Porter Co. The eight men founding the company have an aggregate of 40 years experience in rotameter engineering, the firm claims.

Harry H. Long will be chief fluids engineer in charge of specifications and calibration. He will be assisted by James Anthony and Joseph Ducsik. Garbutt W. Aiman will be in charge of precision rotameter tube manufacture, Jack Bradley will be in charge of production, and Lou Rosenblum will handle purchasing and accounting.

A RAPIDLY widening market on the high seas for air conditioning and refrigeration equipment is indicated by Carrier Corp.'s recent installation of year-round air conditioning equipment in nine new cargo-passenger vessels of the Grace Line.

Many shipping executives feel that trans-ocean travelers to whom speed is paramount will fly, and that the consequent discounting of the speed advantage held by the large luxury liners will result in a general stepping-up of passenger conveniences on smaller cargo-passenger vessels.

The Carrier-cooled vessels will operate between East Coast ports and the west coast of South America. Using Carrier's conventional recirculation system, each ship will have three independent systems: one for the club lounge, bar and dining salon; one for the crew's mess and the petty officers' mess; one for the 29 first-class staterooms, the officers' quarters, the captain's quarters and the barber shop.

G-E TO EXPAND ITS FOREIGN PRODUCTION

In a recent statement to General Electric stockholders, Philip D. Reed, board chairman, revealed that the company is preparing to spend millions of dollars through International General Electric Co. for the construction of new plants and modernization of present facilities for manufacturing electrical appliances in such Latin-American countries as Brazil and Uruguay and in China and India in the Far East.

General Electric also will concentrate on promotion of appliances in foreign markets, in expectation of a rise in living standards abroad. Expansion in China, Mr. Reed said, is contingent on the government amending the new corporation law which restricts operation of American industrial concerns.

UNITED PROJECTS TO START CONDENSER MANUFACTURE

United Project Engineering, New York City, plans shortly to go into production on condensing units and compressors of ¼, ⅓, and ½-H.P. capacity, according to E. D. Dunning, formerly vice president in charge of engineering and manufacturing with Kulair Corp., Philadelphia, who will supervise the new designs.

PETE *and* PAT . . . *The PENN-TUBE Pals*

"Look here, my little Cupid! Penn Tubing is easy to bend, but cut that Valentine stuff!"

REMEMBER! IT'S PENN TUBING for PERFECT PERFORMANCE

***Coil after coil,* PENN TUBING is uniform, easy to bend . . . bright and clean . . . ends sealed. Your jobber has PENN TUBING in all sizes . . . 1/8" to 3/4" inclusive . . . 25-, 50- and 100-ft. coils.**

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Phone 35-111 ERIE · PENNSYLVANIA
Manufacturers "SUPERIOR" BRAND SEAMLESS REFRIGERATION *Tubing*
1920 · 1945 ★ OUR 25TH ANNIVERSARY

HOW'S YOUR NOSE TO KNOW?

Refrigeration Leaks are EASY to Locate with

Lenk HALIDE LEAK DETECTOR

√ Easy to Use

√ Efficient and Simple

√ Non-Clogging Burner Self-Cleaning Orifice

(Can also be used as high-heat blow torch)

SAFE
SURE
ECONOMICAL

Save time and labor—pays for itself on a few jobs!

Lenk ★★★
THE MFG. COMPANY
NEWTON LOWER FALLS 62, MASS.
★★ Manufacturers of Soldering Equipment Since 1919

Over the COUNTER

JIM: *You know, Frank, the more we do to make our countermen really sales-minded, the more it will pay off for us both in customer satisfaction and volume of business. When you come right down to it, the countermen are the ones who see our customers most often, and the way they deal with them goes a long way toward determining how big a part we play in the customer's future purchases.*

FRANK: That's a fact. The counterman, if he's alert, can create a lot of new business for us by anticipating a customer's needs.

JIM: *A top-notch man soon learns to know the items that most of our customers use regularly. If he uses a little forethought in noticing new products and calling them to the attention of the customer, he can*

often develop a list of regular users of the new equipment—and build up more business for us.

FRANK: The more we chew over this subject, Jim, the more angles you can uncover to show the importance of having really capable men holding down key positions like this.

JIM: *There's something we can do to make his job more effective, too. For instance, we can consult with him when we are making our plans, and get his slant on how the business might be developed further. With his experience in handling our customers' wants, he ought to be able to give us some very good ideas.*

FRANK: Perhaps it would be a good plan for us to work up a program that would feature certain manufacturers' products during certain weeks or months of the year—then we could have the countermen call our customers' attention to the featured equipment when they came in for other parts and supplies.

JIM: *That's a good idea. I'll bet that if we really followed through with such a program, we'd find our sales increasing on a great many products we don't consider especially fast-movers at present. By featuring certain products periodically, and having our countermen back us with personalized sales efforts, we'd be able to interest some customers who just never had occasion to use this equipment in the past.*

FRANK: Sure—a definite promotional program, backed up by the enthusiasm of our staff, is bound to be a business-builder. You know, enthusiasm is contagious—and if we can really show him that we're interested in what some relatively new product can do to make more money for him, he'll transmit that enthusiasm on to his customers. After all, those are the logical steps to increased sales and better satisfied customers.

JIM: *I'm satisfied that there's no quicker way to increase our volume than by handling both our customers and our merchandise intelligently in our store contacts.*

FRANK: Another thing I think we should work out this year is the proper display of manufacturers' literature. Our suppliers spend a good chunk of money making their literature informative and attractive; the least we can do is to display it so that it is readily accessible and that it makes the customer want to take it home and read it through.

JIM: *I've been thinking about that, too—I got the idea while I was on a trip a while back. Have you ever*

noticed how timetables and other road information are displayed in hotels or railroad stations? They have racks big enough to hold a variety of individual pieces—and all of them are right up there where you can reach right out and take one. In fact, the way they're set up, they practically beg you to pick up one and read it. And Lord knows that timetables aren't of any

interest except to persons who are traveling.

FRANK: Now that you mention it, I've done it myself. I've picked up more than one timetable that I'll probably never need to use, just because they were so easy to get at. And the literature we'll be displaying is really of interest to our customers; all they need is to have it put within their reach, and arranged so they'll know what they're getting.

JIM: *I think we'd better start right out on the program we've been discussing; every day that we put it off we're losing extra business. Let's put down on paper a point-by-point program, and the steps we'll have to take to get each part of it working.*

FRANK: Sure, that's the first thing to do. Then, after we've laid it all out, we can make whatever changes are necessary to actually put it into effect.

JIM: *Once the whole program is decided upon, we can go over it in detail with all of our men, to make sure they understand what we're driving at and to get their cooperation. We can explain to them then how the program affects each one of them.*

FRANK: Now's the time to get the program rolling, while we've enough spare time to really think it through and get it into working order before the busy season begins this spring. I know it'll pay real dividends in extra business once we get it into operation.

TOPS! for LOW TEMPERATURE

DOLE Vacuum COLD PLATES

Maximum Refrigeration Efficiency

for all REFRIGERATION PURPOSES

Investigate . . . . then you will specify . . . . DOLE Vacuum Cold Plate Evaporators for maximum refrigeration efficiency.

See your Refrigeration Dealer

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5910 N. Pulaski Rd., CHICAGO 30, ILL.
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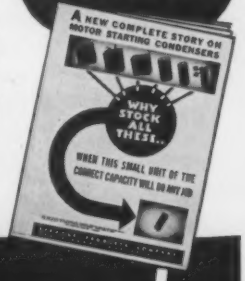
THESE ARE ALL THE MOTOR-START CAPACITOR REPLACEMENT TYPES I EVER NEED!

Always in stock!
Quick, easy to install!
Absolutely dependable!

SPEED UP—save time on motor-start capacitor replacements! Use Sprague UNIVERSAL types on every job! A stock of less than a dozen units is all you need. They always fit—the terminals are right for easy installation—and the Sprague Bulletin illustrated at right tells how to select the exact needed unit for any standard motor. Send for your copy today.

WRITE FOR FREE GUIDE


A NEW COMPLETE STORY ON MOTOR STARTING CONDENSERS
WHY STOCK ALL THESE..
WHEN THIS SMALL UNIT OF THE CORRECT CAPACITY WILL DO ANY JOB

Sprague Products Co., North Adams, Mass.
Distributing organization for products of Sprague Electric Co.

SPRAGUE Universal
MOTOR-START CAPACITORS

WHY WAIT? GET SET FOR A BIG YEAR WITH THESE NEW 1946 PROFIT MAKERS

AMCOIL
Jobbers can deliver
RIGHT NOW!

UTILITY FOOD CONDITIONER

Nothing else like it! A "natural" for profits because it does a *double job:* cools and prevents dehydration, too! When prospects know the Food Conditioner story—they BUY. *Tell* it to 'em:

ONLY with *the AMCOIL built-in humidifier,* plus *36° F. temperature,* can foods be properly preserved. ONLY an AMCOIL FOOD CONDITIONER does this double job. *Sell* it to 'em!

The AMCOIL Food Conditioner will pay for itself over and over again by preventing shrinkage of perishable foods . . . by eliminating the meat-trimming that trims profits . . . by retaining the natural freshness and bloom of meats. The Market is BIG. The Profits are BIG. Get set for a BIG Year. Order from your AMCOIL Jobber Now!

UTILITY DOWN-DRAFT UNIT

Push this forced-draft unit for efficient cooling of packaged and bottled goods, where dehydration is not a factor.

NOW IN PRODUCTION

TWO-WAY Ceiling-Mounted Cooling Units

Discharges cooled air horizontally in two directions along the ceiling. Sizes adaptable for reach-in boxes and walk-in coolers. Write for Bulletin.

COMING SOON
COMFORTAIRE CONDITIONER
Send for Bulletin AC-2

OTHER FAST-MOVING AMCOIL PROFIT MAKERS

Licensed Under *Latent Cooler Patents* - Pat. Pend.

MANUFACTURERS' REPRESENTATIVES
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E. J. Oliphant & Co., 505 Uhler Bldg., Marion, Ohio
Jordy Engineering Co., Inc., 813 Howard Ave., New Orleans, La.
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CONTRACTORS

News • Activities • Plans

Objectives of the National Association of Refrigeration Contractors

1. To arrange for and provide meetings of refrigeration contractors in the various sections of the country.

2. To promote the welfare of its members.

3. To compile and distribute data pertaining to the business of refrigeration contracting.

4. To issue engineering and data sheets required in refrigeration contracting problems.

5. To compile and distribute industry statistics.

6. To aid in bringing about more friendly relations between refrigeration contractors and others engaged in the refrigeration industry.

7. To assist in marketing high grade refrigeration material and apparatus.

8. To encourage its members in establishing and conducting attractive places of business.

9. To encourage and foster harmonious relations between employees and employers.

10. To elevate the standard of refrigeration installations, and to cooperate with the inspection authorities for the maintaining of proper standards and the development of licensing codes and ordinances.

11. To represent the interests of its members in matters of national legislation and regulation.

12. To cooperate in the further development of a National Refrigeration Code and its approval by the American Standards Association in establishing proper standards for refrigeration material as well as its installation.

13. To cooperate with architects and engineers in the preparation of adequate specifications for refrigeration installations.

14. To cooperate with the manufacturers and wholesalers of refrigeration supplies in problems of *manufacturing standards* and methods of distribution.

15. To cooperate with the public utilities companies in problems and for the improvement of service to the public.

16. To cooperate with municipal, state, and Federal governments in matters of public interest.

17. To distribute information to the public that will aid in obtaining best practice in refrigeration installations, including safety to life and property, permanency, adequacy, efficiency and economy of operation, with proper regard for cost.

18. To cooperate with other national associations in problems of trade relations, merchandising policies and for the improvement of service to the public.

19. To aid and assist in the development of standardized forms.

20. To attempt to have Workman's Compensation Insurance rates be given a refrigeration classification.

21. To do any and all other things which come within the scope of the Association's constitution and by-laws which will aid any member in the solution of his particular problem.

Contractors Help Administer Detroit Refrigeration Code

A five-man board, including two refrigeration contractors has been named by Detroit's mayor to administer the city's new refrigeration code.

Wilbur F. Mercier and Alfred C. Allerbusch are the contractor members of the board. John Rehard is a city refrigeration inspector, while William T. Heaney represents users.

J. F. Watson Heads New Charleston, W. Va. Group

Commercial Refrigeration Dealers' Association of Charleston has been organized here with J. F. Watson, McCray Refrigerator Co., as president.

Other members of the board of directors for the current season are: Harry G. Frame, Frame Refrigeration Service, Inc., who will serve as secretary-treasurer of the group; F. M. Lewis, Anchor Fixture Co.; D. R. Johnson, West Virginia Distributing Co.; and Charles R. Hooten, National Equipment Co.

Charter members of the new association include Amick Refrigeration Service, National Scale & Fixture Co., Conditioned Air, Inc., and Thrush Refrigeration Co., all of Charleston, and J. B. Huddle of Beckley, W. Va.

Atlanta Commercial Dealers Organize

Temporary organization of the Atlanta Commercial Refrigeration Association, composed of distributors and dealers of commercial refrigeration equipment in the Atlanta, Ga. metropolitan area, has been effected, with J. C. Jordan as temporary chairman. L. C. Warren Jr. and Ed Rawls have been named to work with Mr. Jordan in setting up a permanent organization.

Nebraska-Iowa Contractors Stage Appliance Exhibit

An exhibit of the latest developments in electrical refrigeration and similar appliances is planned by the Nebraska-Iowa chapter of the National Electrical Contractors.

The display, under the supervision of E. J. Grafentine, will be held Feb. 26 through March 3 in the city auditorium at Omaha.

WATCH US GROW . . .

Continued from page 42

platform in the rear of the shop, so that heavy units may be slid from the truck to the lift, which will lower them to floor level. This will facilitate the handling of heavy units, require less manpower and eliminate back-breaking lifting.

The new front will be composed almost entirely of structural and ornamental glass. Neon sign and neon trim will further identify this as a refrigeration sales and service location.

San Luis Obispo is a coast town of about 30,000 population. Its territory is rich and its merchants are modern, progressive and aggressive.

Campbell's Refrigeration Service is the only refrigeration service outfit in the town. Mr. Campbell believes that its chances of remaining the exclusive service business are dependent on the quality of the service, the courtesy accorded to all customers, and the reliability of the products which it sells.

AAF CREDITS CPL. RASKIN WITH 3 COOLING DEVICES

Cpl. Rubin Raskin, former vice president and production manager of Stangard-Dickerson Corp., Newark, N. J., has been credited with three developments in the refrigeration and air conditioning field which have been adopted for standard use by the Army Air Forces.

These developments—a 50-cu. ft. airborne refrigerator, an airborne air cooler weighing less than 900 pounds, and a portable air conditioned field maintenance and repair shop—have been revealed by the equipment laboratory of the Air Technical Service Command at Wright Field, Dayton.

The refrigerator, a portable "knock down" unit, has been in use for more than a year in planes flying to advanced bases, according to the laboratory. The cooler was used extensively for pumping fresh air into medical evacuation planes pausing for emergency refueling or repairs, the laboratory said, and the shop permits precision operations at tropical bases.

Cpl. Raskin has been assigned to the laboratory since July, 1943. He will return to Stangard-Dickerson upon discharge.

GOODRICH COLD ROOM TESTS AT 90 BELOW

A new cold room in which rubber, synthetic rubber compounds, plastics, and other materials can be tested at temperatures down to –90°F. has been installed by The B. F. Goodrich Co., at its Akron, Ohio plant.

Thirty feet long and 15 feet wide, the cold room has five working units, each 6 feet square, cooled by a three-stage compressor unit and a single-stage compressor using Freon-12 and 22 as refrigerants. Each unit operates separately, with electrically controlled temperatures charted for a 24-hour study at different levels.

Piece of rubber tubing being removed from one of the refrigerators in the new cold room of The B. F. Goodrich Co.

Capable of taking a load of 250 lbs. of rubber, synthetic rubber, or plastics, 500 lbs. of steel, or 100 lbs. of oil, each unit is equipped with a door having a non-locking catch, and an alarm operated from within the unit as further protection against locking in the operator. All operators wear electrically heated clothing. Four of the units have temperature ranges from 50° to –65°F., while the fifth has a range from 50° to –90°.

The cold room has 16 inches of insulation on the sides and top and 19 inches next to the floor. The large entry room is provided with a Niagara No-Frost unit to absorb all moisture, making it unnecessary to defrost the cold room. Moisture is distilled off outside.

BOISE FIRM MOVES

Boise Distributing Co., now a sales agency for both household and commercial low temperature cabinets in addition to its former beer business, has moved to its new $20,000 building at 503 S. 16 St., Boise, Idaho. Merrill S. Ayers is owner.

INTERNATIONAL DIVISION ANNOUNCED BY HONEYWELL

Formation of an International Trade Department of Minneapolis-Honeywell Regulator Co. to coordinate and supervise sales and production activities in Europe and South America has been announced by C. B. Sweatt, vice president.

William H. Westphal, who has just been honorably discharged as lieutenant colonel, Ordnance Department, U. S. Army, has been appointed manager of the new division.

Honeywell presently operates subsidiaries in Sweden, Holland and England and markets its products in most European, Asian and South American nations.

In his new position, Mr. Westphal will assume responsibility for those portions of foreign trade formerly handled by Thomas McDonald, vice president. In addition, he will coordinate his activities with those of P. C. Sharp, export manager.

NEW FROZEN FOOD STORES SELL HOME UNITS TOO

Eskimo Frosted Food Centres, a new chain of merchandising outlets set up to sell a complete line of frozen food products side by side with Frigid-Freeze food storage cabinets for the home, has been launched by Refrigeration Corp. of America, Frigid-Freeze manufacturer.

President of the Eskimo chain is Miss Rae Kessler and general manager is Mel A. Cole, recently discharged from the Army Air Forces.

First unit of the new chain was opened at New Rochelle, N. Y. Other stores, all in New York's Westchester County, are located at Larchmont, Mt. Vernon, White Plains, Yonkers, and Bronxville. Miss Kessler has stated that these six stores are only the beginning, and that leases already have been signed for additional outlets.

Refrigeration Corp. of America does not sell any frozen foods, but it does assist its Frigid-Freeze dealers in making arrangements with reliable suppliers. The company believes that its plan of selling frozen food storage units along with the foods themselves is the answer to frozen food sales competition provided by supermarkets and chain food stores.

AMINCO
OIL SEPARATORS

Aminco Oil Separators protect compressors by maintaining correct oil level in crankcase and by excluding oil from refrigerant stream they enable coils, condensers, valves and dehydrators to function most efficiently.

These oil separators are made for jobs from 1/3 H.P. to 120 tons and are used everywhere, ashore or afloat, where efficient refrigeration is desired.

Full descriptive bulletins on request.

AMERICAN INJECTOR CO.
1481 - 14th AVE. DETROIT 16, MICH.
Van D. Clothier, 1015 E. 16th, Los Angeles
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COIL CLEANER
for
Water Cooled Equipment

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PRACTICAL

Releases stuck compressors
Quickly . . . Fast Action
on water scale

•

ECONOMICAL

Can be reused many times
or diluted when necessary

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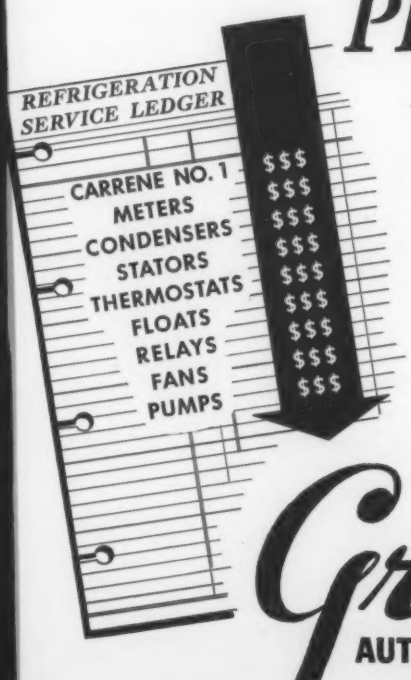
APPLICATION
easy without
Special Equipment

Write for Literature
or
Call your Local Jobber

SKASOL CORPORATION
Webster Groves 19, Missouri

PROFITS FOR YOU



AN AUTHORIZED GRUNOW SERVICE

can add up to only one total on your 1946 Ledger: *Profits.*

Here are the facts—

- When a Grunow Refrigerator needs repair, the owner comes to you as a recognized authority. *You* get the business.
- Output of new refrigerators this year will not meet demand. Grunow Authorized Service will keep your personnel employed and help pay your overhead until the new boxes arrive.
- Servicing refrigerators already in use will acquaint you with owners and prospects for new boxes in your locality. They will respect your advice and buy from *you* when new refrigerators are ready for delivery.
- Check with us to see if a Grunow authorized service is open in your locality.

Grunow
AUTHORIZED SERVICE, INC.

FACTORY TESTED PARTS

4313 W. Fullerton Avenue, Chicago, Illinois

BIGGER PROFITS

. . . with the compressor oil that offers OUTSTANDING BENEFITS!

TEXACO *Capella Oils* assure bigger profits for distributors, dealers and service engineers because they *satisfy the user.* Increased sales and repeat business are bound to follow. Check these great benefits —

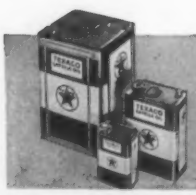
Texaco Capella Oils are always moisture-free, always stable. They have very low pour tests, do not react with refrigerants, resist gumming and sludging — assure smooth, trouble-free operation for all types of compressors.

Re-sealable containers — 1-qt., 1-gal., and 5-gal. — keep *Capella Oils* in perfect condition. Every needed viscosity is available. Leading manufacturers of air conditioning and refrigerating equipment either use, recommend or approve *Texaco Capella Oils.*

Prompt delivery is assured by more than 2300 Texaco distributing plants in the 48 States. Order *Texaco Capella Oil* today from the one nearest you. The Texas Company, 135 East 42nd Street, New York 17, N. Y.

FREE LUBRICATION GUIDE

Lists make and type of compressor and refrigerant in 55 electric refrigeration units and 32 air conditioning units. Shows which grade of Capella Oil to use for each. Guide can be bound into service manual or used as wall chart. Write today for your copy.



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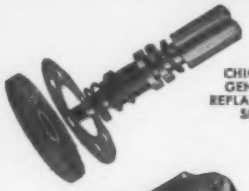

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THE PRACTICAL Refrigeration Engineering MANUAL . . . by Harold Smith

XI. Fur Storage

PART II

FORCED air convection units should be figured for capacity on close temperature differential of around 10° to insure a low relative humidity of 50 to 60 per cent, as this is very essential to prevent the development of mold and rotting of furs while in storage. A wide temperature differential which would raise the relative humidity and cause an accumulation of moisture in the room would cause very unsatisfactory results.

COILS MAY FROST

While the temperature of the room is lowered to 15° F. during the shock-killing period frost and ice will develop on the coils, sometimes necessitating the use of artificial defrosting methods employing hot gas, electric heat, or water. However, as these low temperatures are maintained for periods of only three or four days, as soon as the temperature is returned to normal usually the coils will defrost themselves if they are properly designed and chosen for the installation.

MANUAL DEFROSTING

If necessary the equipment can be shut down for a sufficient period to defrost the coils if this does not occur automatically. It is advisable, however, to provide or have available some sort of manual method of defrosting as insurance against the building up of frost on the cooling units which is not taken care of automatically when normal temperatures are restored. Otherwise, serious temperature changes will be encountered in getting the cooling units defrosted or the machines may run for greater periods than necessary because of the reduced efficiency of the cooling units due to ice formation on the face area.

THERMOSTATIC CONTROL

Control of the storage room is usually handled by a room type thermostat connected to a solenoid valve in the refrigerant liquid line. A thermostat of this nature operating on a range of 3° will hold the temperature uniformly, and if it is a manual operating type with choice or selection of temperature settings on the dial the operator of the storage cooler can re-set the dial for 15° F. temperature whenever he is ready to perform the shock-killing operation and then return the temperature setting to 35 or 36° F. when he is ready to resume normal operation. It is usually desirable to use a pressure control on the machine adjusted to cut off and on within the limits of the temperature operation as a protection in case the room thermostat or solenoid should fail to function properly.

SPACE RACKS WELL

Fur storage rooms usually have a ceiling height of from 11 to 12 feet inside the cooler. This height is required in order to place the coats in the cooler at two levels, one set of hangers close to the ceiling and the second set of hangers below but sufficiently high off the floor so that the coats do not touch the floor. Usually the bottom row of horizontal hangers are placed about 5 feet off the floor and the top row of hangers are placed about 10 feet off the floor. This provides room between the two layers of coats for air circulation. The horizontal hangers are as a rule set 24 inches apart with an aisle space of 36 inches. For quick figuring,

HONEYWELL TELLS OF PLAN TO EXPAND 4 FACTORIES

A $3,500,000 expansion program involving addition to plants and machinery in four United States and Canadian cities has been announced by Minneapolis-Honeywell Regulator Co. Needed to handle expanding sales in all company divisions, the new program follows purchase of a ten-story Minneapolis factory and the addition of four floors to the main plant during the war years, Harold W. Sweatt, president, stated.

SALEM ADDS TO LOCKER EXPERIMENTAL PROGRAM

Salem Engineering Co., Salem, Ohio builder of frozen food locker storage plants, has added another unit to its setup for experimentation in the field of locker plant operation.

The new unit is a prefabricated locker plant adjacent the original pilot plant. Plans are under way for still another of these prefabricated units. The two new plants will be used in connection with a training course for locker operators.

it is usually figured that one foot of hanger length will take care of five coats and by using this as a guide it is possible to quickly figure the length of the horizontal hangers and the number required to handle a specified storage room capacity.

SINGLE ROOM ADVISED

Some fur storage vaults are built in two sections, one room for general storage purposes and the other room for shock-killing. Such an arrangement, however, requires a great deal of additional work as the coats have to be removed from one room to another whenever lower temperatures are required for de-mothing. Because of this fact it is recommended that a single storage room with provision to carry two temperatures be used.

There is no particular difficult problem in the requirements for fur storage cooling. Engineering figures must be closely and carefully estimated, however, as only through the use of proper sized equipment will entirely satisfactory results follow.

MAKE CAREFUL SURVEY

It is always of the utmost importance for the refrigeration engineer to learn definitely from the owner just how the cooler will be operated, including the following factors: the number of men that will be employed within the cooler each day, and the length of time they will work inside the cooler; the number of electric lights that will be burning, and the length of time they will be in use; and also, if possible, some estimate of the number of times each day the doors of the cooler will be opened and furs moved in and out of the cooler. While it may be impossible to always get accurate information on this subject, by questioning the owner carefully and developing figures from his expressed opinion, with reasonable allowances made for the factor of safety, it is possible to come very close to the total load requirements. With this information it is only a matter of figuring heat leak load and the service load to secure figures for the standard operation, basing these figures as previously mentioned on a temperature of 15° F.

VENTILATION NEEDS

Regarding the matter of ventilation, it is usually advisable to put one or two grills in the room close to the ceiling. These ventilating grills should have shutters that can be closed, and should have a small insulated door behind them or outside the cooler that can be opened when ventilation is required. Whenever the cooler is ventilated, allowing stagnant air within the cooler to be blown out and new air to enter, an increased load naturally will be imposed on the machine handling this operation. However, these load requirements should not be in excess of the load requirements called for during the shock-killing period when the temperature is lowered from 35° to 15° F., so no particular load estimates are necessary for this part of the operation.

Editor's Note: Part III of the Fur Storage chapter of The Practical Refrigeration Engineering Manual, which will appear in next month's issue, will set up in detail a typical fur storage cooling installation, and outline the steps to take in determining the load requirements. It will set forth in simple "how-to-do-it" fashion the fundamental information you would need for engineering such a job yourself.

● Count on Aerovox for your motor-starting capacitor needs, and you won't go wrong. In the first place, Aerovox pioneered the high-capacity electrolytics for motor-starting purposes. Millions of those capacitors are in daily use. Their service records tell the story of Aerovox dependability.

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Deluxe Model Frigidaire

The new deluxe seven cubic foot DI-7 refrigerator, first deluxe model to be produced by Frigidaire division of General Motors Corp. since the war's end, now is in production at the company's Dayton factory.

Priced to retail in Dayton at $180.75, including federal tax and

warranty but excluding local taxes, the new unit is comparable in size to Frigidaire's first postwar model, but contains many deluxe and improved features.

Outstanding improvements include the 12-way convertible interior created by a flexible shelf arrangement, a non-refrigerated storage bin at the base of the refrigerator, and the glass-topped hydrator providing 583 cubic inches of moist storage space for fresh fruits and vegetables.

Home and Farm Freezer

"Dew Freeze," a new home and farm freezing and low temperature storage cabinet of approximately 20 cu. ft. capacity, has been announced by G. I .Hauk & Co., St. Louis.

All interior walls of the cabinet are lined with Hubbell Yoder full flood condenser plates providing sharp freeze qualities throughout the entire box. Condensing units of standard make and Sporlan valves are employed. Walls are vapor sealed and insulation material of 6-lb. density is used.

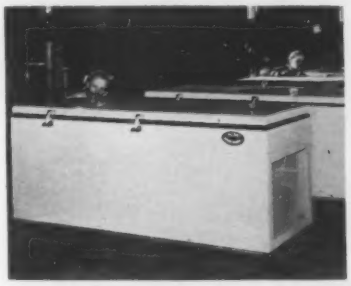
Exterior measurements of the cabinet are: length, 75 inches; width, 27½ inches; height, 34 inches. Top opening measures 34 by 19 inches and is fitted with a single lid.

Unit Air Conditioner

A new and improved model of its packaged air conditioning unit has been announced by the refrigerating machine division of Curtis Mfg. Co., St. Louis. This self-contained unit provides cooling, dehumidifying, circulation, and filtering of the air, and can be adapted for heating and humidifying also if desired. Installation requires only electrical and water connections. The unit is available in three and five ton capacities.

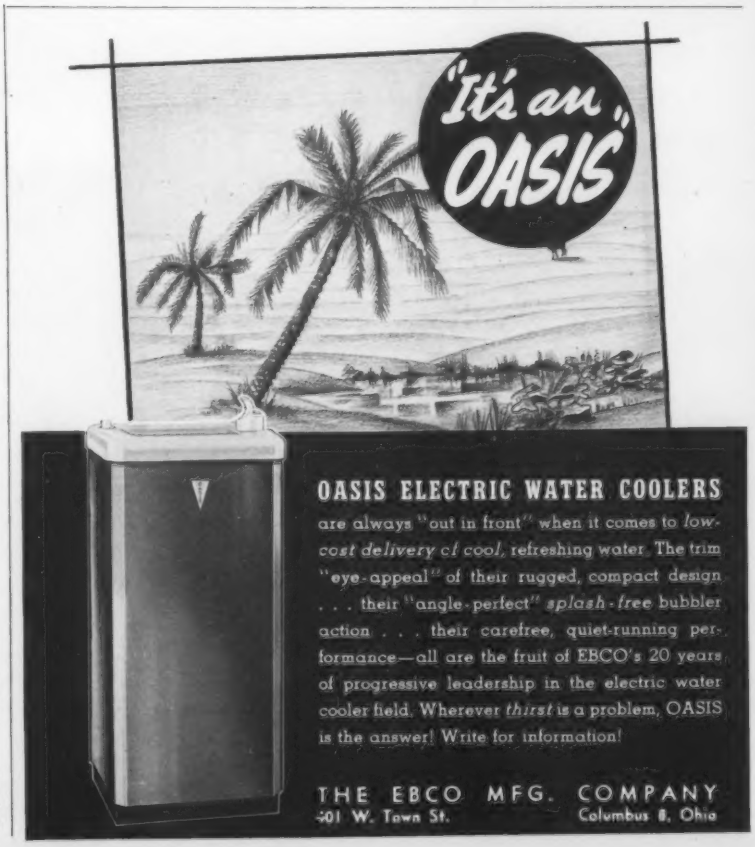
Olde Dominion Freezer

A new home and farm food freezing and storage unit is being produced under the name of "Olde Do-



minion" by the Olde Dominion Mfg. Co., Roanoke, Va.

President of the company is Carl W. Windel, who for the past three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years has been associated with refrigeration and air conditioning activities of the Office of Price Administration in Washington, D. C. He has been in the refrigeration industy for 21 years, having been connected at different times with Kelvinator, Copeland, and Frigidaire.

The Olde Dominion freezer is a horizontal-type cabinet with a double lid. Measuring 84 inches long, 28 inches wide, and 33 inches high, it has a capacity of 15 cu. ft. Constructed of heavy-gauge metal finished in white porcelain, it is powered by a ⅓-H.P. condensing unit and is equipped with automatic temperature control. Hardware is of stainless steel, with padlock accommodation.

Iceberg Locker Systems

Two models, a utility size and a commercial size, are being offered by Iceberg Refrigerated Locker Systems, Inc., in its line of sectionally-constructed, self-contained, self-service, frozen food locker storage systems.

The utility size is available in two to 10-drawer combinations, each drawer having 6 cu. ft. of net storage space. Dimensions of the 10-drawer unit are: length, 15 feet 4 inches; width, 49 inches; height, 46 inches. The unit is counter height, so that the top can be used for display or work

space. A ¾-H.P., ¾-ton condensing unit provides the refrigeration.

The commercial size is available in 10 to 60-drawer combinations. Overall dimensions of the 60-drawer unit are: length, 18 feet; width, 7 feet 4 inches; height, 7 feet 4 inches. It is equipped with a 3-H.P., 2-ton water cooled condensing unit.

Both utility and commercial sizes feature blast freezing, automatic bar lock on drawers, and an alarm bell which signals when power is shut off or temperature rises above zero. Interior of both units is aluminum, while exterior finish is white baked enamel.

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COLD PLATES
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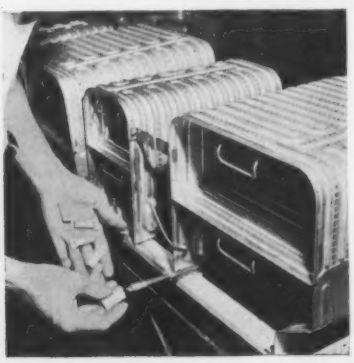
Plastic Sealing Caps

A new type of plastic compound with many possible uses, particularly in making seals that are air tight and



water tight, has been developed by the plastics divisions of the General Electric Co. in Pittsfield, Mass.

This new material was developed to

seal the ends of metal tubing to keep the interior free of dust and moisture while being shipped, stored, or handled. Many new uses have been discovered, the most recent ones being lead markers on wires and cables. These caps and sleeves are available in red, blue, green, orange, yellow, white, and transparent.

Their good electrical properties make them useful also as insulation covering for bus bars, selsyn motors, and wire cleats. Completely water resistant, they also are being used on air conditioning and refrigeration equipment. They can be produced to specified diameters and thickness.

Shipped dry, these caps and sleeves must be soaked in G-E dilater solution previous to use. They can thus be expanded as much as 50 percent of their normal size. Placed in position while dilated, they shrink in drying to smaller than their normal size. They can be crimped any length with a trade mark added if desirable.

Small Tube Bender

A new hand-bending tool which permits all kinds of small tubing to be curved to any desired angle has been developed at the Glenn L. Martin Co., Baltimore, Md.

Designed by a Martin employee, Carroll E. Adreon, the new tool consists of a sturdy steel base which may be used in a vise or clamped onto a bench, a revolving radius rod equipped with a handle for turning, a stop block grooved to hold the tubing, and a movable radius block which guides the tubing around a bend roll centered on top the base. This roll, cylindrical in shape and also grooved has a top plate scribed in 360 degrees. A measuring point is marked on the movable radius block.

The radius and holding blocks and the roll are so grooved as to prevent crushing or change in section of the tubing.

In operation the tubing is inserted in the groove of the stop block and the movable block which has been returned to the zero degree point. The movable block is then pulled around the bend roll, being connected to the revolving radius rod, until the measuring point is directly opposite the mark of the angle desired in the bend roll.

Allowances can be made for tubing having a "spring back" characteristic by merely moving the measuirng point to as many degrees beyond the desired angle marking as the tube will spring back when released.

Hack Saw Blade Holder

Designed to cut down the discard of broken lengths of hack saw blades, the "Super" blade holder distributed by A. D. McBurney, Los Angeles, also accommodates thin flat file sections.

It is a single unit tool composed of a tubular handle with an extended positive grip nose for securing the working point of the blade or file.

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(The average American today has a choice of just going where "his feet take him", or choosing wisely the course to follow. Let's skip ahead 10 years, and take a look at John Jones—and listen to him . . .)

"SOMETIMES I feel so good it almost scares me.

"This house—I wouldn't swap a shingle off its roof for any other house on earth. This little valley, with the pond down in the hollow at the back, is the spot I like best in all the world.

"And they're mine. I own 'em. Nobody can take 'em away from me.

"I've got a little money coming in, regularly. Not much—but enough. And I tell you, when you can go to bed every night with nothing on your mind except the fun you're going to have tomorrow—that's as near Heaven as man gets on this earth!

"It wasn't always so.

"Back in '46—that was right after the war and sometimes the going wasn't too easy—I needed cash. Taxes were tough, and then Ellen got sick. Like almost everybody else, I was buying Bonds through the Payroll Plan—and I figured on cashing some of them in. But sick as she was, it was Ellen who talked me out of it.

" 'Don't do it, John!' she said. 'Please don't! For the first time in our lives, we're really saving money. It's wonderful to know that every single payday we have more money put aside! John, if we can only keep up this saving, think what it can mean! Maybe someday you won't have to work. Maybe we can own a home. And oh, how good it would feel to know that we need never worry about money when we're old!'

"Well, even after she got better, I stayed away from the weekly poker game—quit dropping a little cash at the hot spots now and then—gave up some of the things a man feels he has a right to. We didn't have as much fun for a while but we paid our taxes and the doctor and—we didn't touch the Bonds.

"What's more, we kept right on putting our extra cash into U. S. Savings Bonds. And the pay-off is making the world a pretty swell place today!"

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